"ON BOARD THE PENSACOLA:"

THE ECLIPSE EXPEDITION
TO THE
WEST COAST
OF AFRICA:

BY

ALBERT BERGMAN

(A MAN BEFORE THE MAST

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The Eclipse Expedition to the West Coast of Africa.

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NEW YORK:

1890.

TO MY

BROTHER SEAMEN IN THE U. S. NAVY

THIS BOOK IS DEDICATED.

A. B.

INTRODUCTION.

THE Eclipse Expedition to the West Coast of Africa is of interest to every mother and father who has a son on board the U. S. S. "Pensacola" and such of the public as may read it. The "Pensacola" had arrived at Cape Coast Castle, Africa, when I found that not one of my fellow-shipmates had attempted to give their friends an opportunity to look back upon those days when the U. S. S. "Pensacola" visited the coast of Africa with the United States Eclipse Expedition in charge of Professor Todd.

After due consideration I undertook this task, having read many books written by amateur authors of the navy, comprising reminiscences of different incidents during their various cruises, but none of them has given a space for the routine of the navy regulations and the different retributions, etc.

It has been my earnest endeavor to give a true account of facts and incidents without discrimination during the time of the absence from home of the U. S. S. "Pensacola."

I wish to express my gratitude to Lieutenant Commander Hanford and Lieutenant Nichols for their great kindness toward me during my work in lending me useful books of information from their private libraries. Among those who kindly favored me with items of interest are Mr. H. Meyers, who is the author of "False Alarm," also "Astronomers in a Quandary" (which will be found in the text of this book); N. H. Brown, naturalist, who gives

his experience in the interior of Africa; and Professor Abbe, who has also supplied a paper on meteorological observations.

Our passage had been undoubtedly very exciting to all of us, but I hardly believe there is an officer or man on board who would ever volunteer for a similar expedition again, much less for an expedition into the interior of Africa, after having had the practical experience which we all have had with the African elements. To explore or take observations, a country like Africa might be of interest and pleasure to those who need not expose themselves to the sun and weather, but those who have to depend upon their physical strength for support on these occasions have our heartiest sympathy.

Before I enter upon the cruise, I will give preliminary attention to the U. S. S. "Pensacola's" routine of divisional exercise, regulation, retribution, etc.

Men on board of a man-of-war are divided into starboard and port watches, and distributed in different parts of the ship, such as starboard and port forecastle; starboard and port foretop, main-top, mizzen-top, and afterguards, with a first and second captain of each top, and a top-keeper. Each man holds a watch number or a station bill, which informs him about the different duties in his top at different evolutions, and of the various kinds of duties to which he is ordered.

COPY OF A STATION BILL.

(FORM No. 26.)

Watch No. 333.

U. S. S. "PENSACOLA"—2D RATE.

STATION BILLET.

Name, Albert Bergman..... Rate, Ord. Sea.
Division, Nav. .....; Gun ..... Company 3.....; Mes. 7.
Armed of Boat, 2d Cutter ..... Running Boat, 2d Cutter.
Fire Quarters ..... Read Fire Bill.

EVOLUTION, STATIONS AND DUTIES IN MIZZEN-TOP.

Loosing sail.
Furling sail.
Bending sail.
Up and down top-gallant and royal yards.
Up and down top-gallant masts.
House and fid topmasts.
Shifting topsail yards.
Up and down lower yards.
Out and in boats.
Mooring and unmooring
Making sail and getting under way.
Bracing up and setting courses.
Tacking and wearing.
Reefing topsails.
Shortening Sail and coming to anchor.
Clear ship for action.

(Read combination bills posted on gun-deck.)

Watch numbers are then divided into divisions; such as first, second, third and fourth divisions; engineer's division, pay-master's, surgeon's and navigator's divisions. This is for great gun drill, general quarters, fire quarters, etc.

The following list indicates divisional exercises on board:

ROUTINE OF DIVISIONAL EXERCISES.

DIVISIONS.	MONDAY A.M.	TUESDAY A.M.	WEDNESDAY A.M.
1.	Revolvers.	Rifles.	Great guns.
2.	Swords.	Revolvers.	Rifles.
3.	Great guns.	Swords.	Revolvers.
4.	Rifles.	Great guns.	Swords.
Navigator's.	Rev'lv's or swords.	3 in. and Gatl'g.	Rifles.
Powder.	Stations.	Rifles.	Revolvers.
Marine.	Rifles.	Skirmish.	Great guns.

DIVISIONS.	THURSDAY A.M.	FRIDAY A.M.	SATURDAY A.M.
1.	Swords.	Gen. quarters.	Air bedding.
2.	Great guns.	Clear ship for action once a month.	
3.	Rifles.	.....	.....
4.	Revolvers.	.....	.....
Navigator's.	Stations.	.....	Air bedding.
Powder.	Swords.	.....	.....
Marine.	Hotchkiss.	.....	.....

MONDAY P.M.	TUESDAY P.M.	WEDNESDAY P.M.
Exercise all boats singly under oars or sails, or drill boats in squadrons as directed by signal.	Spar or sail drill.	Company or battalion drill if practicable. Land battalion.

THURSDAY P.M.	FRIDAY P.M.	SATURDAY P.M.
Arm and equip boats, and torpedo drill, on alternate weeks.	Fire quarter abandon ship once a month.	Mend sail.

ROUTINE OF EXERCISES WITH SPARS, SAILS, ETC.

MONDAY	TUESDAY
A.M.	A.M.
Loose sail to buntline or bowline, as ordered.	Up the top-gallant masts and top-gallant and royal yards.

MONDAY	TUESDAY	WEDNESDAY
P.M.	1 P.M.	P.M.
Down top-gallant yards and masts, bend light sails.	Spar or sail drill, as ordered.	Up top-gallant yards.
	P.M.	
	Down top-gallant and royal yards, unbend light sails.	

THURSDAY	FRIDAY	SATURDAY
P.M.	P.M.	P.M.
Down top-gallant yards.	Up top-gallant yards.	Mend sail.

Approved—A. R. YATES,
Captain Commanding.

What most interests a man-of-war's man when he first arrives on his designated ship is the different methods of punishment exercised by his commanding officer when he commits a breach of discipline. On a well-regulated ship the commanding officer will have the same put up in a suitable place where it can be seen by the crew. The crew are placed in different classes, according to their conduct, and various exemptions are attached to these classes. The following punishments are inflicted on board the "Pensacola" when a breach of discipline is committed by any of the crew:

OFFENSES AND PUNISHMENTS.

FIRST CLASS.

From one to two hours' extra duty.

1. Above rail—Getting above rail before ordered to lay aloft.
2. Aloft—Laying aloft without permission.
3. Boats slow in manning.
4. Boat-keeper laying down in stern sheets.
5. Bright work not cleaned.
6. Calls—Slow in answering.
7. Clothes about deck out of hours; same in lucky bag; same not marked; same hanging in improper places; same improperly washed or stopped on line; washing same out of hours.
8. Conduct—Noisy or boisterous about deck.
9. Spitting upon or soiling decks.
10. Ditty-box about deck out of hours.
11. Duty—Careless performance of.
12. Formation—Late at.
13. General order—Careless observance of any.
14. Government property—Careless use of.
15. Hammocks improperly washed or stopped on the line; late same.
16. Mess-gear not cleaned.
17. Muster—Late at.
18. Obscenity.
19. Obeying orders—Want of alacrity.
20. Out of uniform.
21. Profanity.
22. Saluting—Not saluting officers afloat or ashore.
23. Spitting from aloft.
24. Towels hanging in improper places.
25. Untidy in dress.

SECOND CLASS.

From three to four hours' extra duty.

1. Boat-keeper asleep—When.
2. Calls—Not answering.

3. Clothes—Borrowing without permission.
4. Disrespect in slightest degree.
5. Drills—Absent from.
6. Galley-cooks—Interfering.
7. General orders—Violating any.
8. Government property—Carelessly damaging or losing.
9. Hailing deck from aloft, or hailing aloft after being cautioned not to do so.
10. Lying.
11. Malingering.
12. Negligence.
13. Offense—Frequent repetition of, or aggravated form of any of the first class.
14. Obscenity.
15. Prevarication as a witness.
16. Profanity.
17. Provoking words or gestures to a shipmate.
18. Quarreling.
19. Shirking.
20. Standing lights meddled with (as lighting paper, etc.)
21. Smoking in an improper place.

THIRD CLASS.

From one to two days' solitary confinement on bread and water, or one to four days' confinement, solitary or in irons.

1. Answering for another at watch, in a boat, or quarters, or at any formation.
2. Clothing—Having another's in possession.
3. Divine service—Misbehaving at, or willfully disturbing same.
4. Drunk on duty.
5. Disrespect or disobedience.
6. Fighting.
7. False testimony.
8. Government property—Willful destruction of.
9. Immorality.
10. Insubordinate.
11. Selling clothes without permission of officer of division.
12. Naked lights—Using in holds or store-rooms.
13. Offense—Frequent repetition of, or aggravated form of any of the second class.
14. Police—Interference with in execution of their duty.

15. Sentry—Using insulting language to; failing to render prompt obedience to order of same.
16. Shipmate—Striking, using insulting language.
17. Smoking below gun-deck.
18. Station—Leaving before being regularly relieved.
19. Watch—Going below during.

FOURTH CLASS.

From three to five days' solitary confinement on bread and water, or five to ten days' confinement, solitary or in irons.

1. Desert, or attempt to.
2. Gross disobedience or disrespect.
3. Offense—Repetition of, or aggravated form of any of the third class.
4. Offense—Aiding or enticing any person to commit any of the third and fourth classes.
5. Police of the ship—Failing when ordered to render assistance to.
6. Ship—Leaving without permission.
7. Sentry—Positive disobedience to orders of.
8. Smuggling liquor.
9. Striking inferiors or equals without provocation.

FIFTH CLASS.

General or summary court-martial.

Frequent repetition of, or aggravating form of any offense of third or fourth class.

SIXTH CLASS.

Overstaying leave (breaking liberty).

From one to two hours, reduced to second class.

From two to eight hours, reduced to third class.

From eight to twelve hours, third-class money for only one month.

From twelve to twenty-four hours, reduced to fourth class, if in fourth class conduct, class-money for mess two months.

More than twenty-four hours, reduced to fourth class, money for mess for two months, or summary court-martial.

CONDUCT CLASSES.

FIRST CONDUCT CLASS.

Those who perform duty efficiently, cheerfully, and have had no more than four hours' extra duty during the month and return from leave clean and sober.

SECOND CONDUCT CLASS.

Those who perform duty efficiently and cheerfully, though in a less degree than those of the first class, and have no more than eight hours extra' duty during the month, and return from leave on time, but show the effects of drink, or not over leave more than two hours, and clean and sober.

THIRD CONDUCT CLASS.

Those who perform duty less efficiently and willingly than those of first and second classes, have over ten hours' extra duty during the month, return from leave drunk or not more than twelve hours over time.

FOURTH CONDUCT CLASS.

All those who can not fill the requirements of the third class and have eighteen hours' or more extra duty.

Whenever the funds and circumstances on board will permit and the efficiency of the ship will warrant the indulgence, the first conduct class will be granted liberty and draw monthly money and one half of their monthly pay. Second conduct class may be granted liberty for twenty-four hours, once a month, and draw one third of their monthly money.

Third conduct class may be granted liberty once in six weeks, for twenty-four hours, and draw one fourth of their monthly money.

Fourth conduct class may be granted liberty for twenty-four hours in two months and draw one fifth of their monthly money.

The crew will be classified monthly as to conduct. Any one of the second, third or fourth conduct classes who returns from liberty on time clean and sober, will be promoted one class, provided the

number of hours of extra duty during previous month will warrant such promotion. Petty officers are expected to set an example of cheerful, willing obedience, cleanliness, and attention to duty. They will be classified according to their possession of these qualities, and as to their conduct. Petty officers guilty of offenses of third and fourth classes will, unless there are extenuating circumstances, be disrated.

In making up conduct classes:

One day's solitary confinement is equal to six hours extra duty.

One day's confinement in irons, double or single, equal four hours' extra duty.

Dates for liberty commence from last liberty according to classes.

Men wishing to see the commanding officers should come to mast at 9 o'clock A.M.

ON BOARD THE "PENSACOLA."

ALL of the Eclipse Expedition having arrived on board, and a large supply of provisions having already been stowed away, preparations were made to start on a long voyage. Accordingly, everything movable was secured, to prevent rolling about when the vessel was put to sea. The morning of departure, October 16th, having arrived, orders were given to cast loose our mooring lines and we started out on our long trip to the West Coast of Africa to bring back information which has so long been looked forward for by the Scientific Department of the United States.

The morning was lovely, and the sun was seen rising over the city as we took our departure from the New York Navy Yard. Most of the crew were in high spirits, notwithstanding the consciousness that they were about to part from their homes and those who were so dear to them to undergo the hardships of the briny deep; but the thought of Father Neptune's hardships about to be undergone brought some of them to desertion, and we were obliged to go to sea minus a few men.

We steamed down the river, a favorable N.E. wind blowing, and when we reached Sandy Hook Lightship, made plain sail. The wind increasing to a gale forced us to take one reef in our topsails and furl all light sails. The ship was rolling and pitching heavily, causing a great deal of seasickness and displeasure among those who had not been to sea before, and whose constitutions would not

permit the rolling and turning over of their early morning meal. Some of the Eclipse party were particularly noticeable on the decks, walking about in their winter overcoats to keep out the bleak N.E. gale, looking fearfully achromatic about the face. They were all fully aware that Neptune had full control of their comforts while on shipboard, and that they must make the best of it by dropping into profound silence and trusting to the mercy of the wind and waves to bring them in safety to the place where all their hopes of a glorious success would be fully realized.

On October 19th the wind had become somewhat reduced in force and the sun began to shine upon us, to our great comfort, which all appreciated very highly after the two or three cold nights; but the sea from the gale was still running very high, causing our vessel to roll heavily.

Our scientific passengers had become quite invisible, but now that the sea had somewhat calmed, they put in an appearance and could be seen making eager endeavors to get on their sea-legs, and every now and then when the ship gave a lurch holding on to a rope or stanchion for fear of being thrown down a hatchway. But all these little requisites came to them in a little while, and a few days at sea made them feel perfectly at home, for they could be seen around the decks unpacking their trunks, hauling over and fixing their instruments and apparatus, and making extensive preparations for inspecting.

On the morning of the 22d a little excitement prevailed on board by the sudden appearance of three water-spouts about two miles distant on our port beam. People may talk about grand sights, but I think there are none grander than the one we saw on this morning. Vast columns of water containing thousands upon thousands of tons were seen ascending to the clouds, swaying their bodies in most graceful curves. These water-spouts are very dangerous when they come in contact with a ship, for if one should happen to break over a vessel the chances

are that the vast amount of water breaking on her deck at once would take her on an extended visit to Davy Jones' locker. Altogether there were seven of these water-spouts to be seen at one time, each rising to an altitude of about fifteen thousand feet above the level of the sea. During all this performance the sky had become darkened to a great extent with heavy rain and thunder-clouds, making a solemn gloom over the water, and giving every appearance of an approaching storm. The clouds suddenly burst and water began to descend in great fury and abundance, accompanied by thunder and lightning. Another water-spout was seen growing and making its way to our vessel. For the safety of the ship, orders were given to bring a gun into the port-gangway and fire a blank charge, which being done put an end to all further procedure of Mr. Water-spout. We had been sailing at the rate of two knots an hour, until the approach of the gale, which was blowing at the rate of forty to sixty miles an hour from the N.W., and which increased our speed to nine knots. At noon observations were taken, and we found ourselves to be in latitude 38° 10′ south, and longitude 62° 30′ west. At 11:30 A.M. the squall had somewhat decreased in force, and by 1 P.M. the weather was again clear and everything seemed propitious for fair weather. We shook the reefs out of the topsail, which had been taken in at the commencement of the gale and made all plain sail. Toward evening, the wind died away and the sun was sinking in all its glory in the west we had left far behind, leaving the moon and stars to light us on our solitary way. The band on board began to enliven the evening with several selections of good music, which after the morning storm seemed to soothe and gladden the hearts of the sickly and weather-tried mariners.

Eight bells having been struck, the wheel and lookouts were relieved, and the watch piped below to turn into their hammocks to take a rest of four hours, and then came on

deck again to relieve the opposite watch. The watch on deck soon found out the way to make themselves comfortable by resting their weary bones on the soft side of a plank, the officers of the deck pacing the weather side of the after-bridge.

As some of my readers are doubtless ignorant of life on board a man-of-war, I will give a few insights into the discipline which is carried on on board a naval vessel. Two lookouts are stationed on the forecastle during the night, they being relieved every time eight bells are struck. These lookouts are called port and starboard cat-head lookouts. Their duties are to report any land, light, ship, or breakers seen by them ahead during the night, and every time the bell is struck they shout out whether the port and starboard side-lights are burning brightly. One man is stationed by the life-buoy to shout out at the strike of each bell: "After-bridge life-buoy. Bright light!"

Then comes the night police, which consist of the ship's corporal, a corporal of the Marine Guards, and a quarter-gunner, who come on deck at proper times and report their stations, the quarter-gunner reporting the battery all secure. The corporal of marines and ship's corporal patrol the spar, gun- and berth-decks respectively during their watches, keeping a good lookout for fire, lights, prisoners, accidents, etc. This routine is kept up until daylight.

The watch on deck had not rested very long before the cat-head lookout reported a ship's wreck on our starboard bow, which was reported at once to the commanding officer, who sent up an order to the officer of the deck to port our helm and bear down on the vessel, which order was accordingly given to the quarter-master of the watch. The supposed wreck was now abeam, all hands eager to render assistance, should there be any living souls seen on her. It looked just like a ship with her keel upward, and a chill went through all hands at not seeing a soul on board, supposing, of course, that they all must have met

their fate in the deep, dark waters. Our vessel having been brought to bear down upon her, orders were given to call away the life-boat, which being done with all haste possible, was dispatched to the mysterious-looking craft to render assistance, and soon returned with the happy news that the supposed wreck had turned out to be a drift of sea-weed. The life-boat being hoisted, the ship was put on her course again—viz., E. 1-2 S.

And once more quietness reigned supreme.

On the following morning, October 23d, at 4 A.M., my watch was piped on deck. Usually, ten minutes only are allowed for the performance of lashing up the hammock and preparing your toilet, which consists of nothing but a dive to the bottom of a pint of water. If any of the men in the watch below should sleep over their limited time, they are punished according to the rules which govern the navy. Those men found guilty of minor offenses are punished with so many hours' extra duty, according to the nature of the offense; and it is not the cleanest of work they are generally given to do. The majority of the work consists of cleaning out the bilges, water-tanks, polishing bright work, etc. Coming on deck, I found the wind had died out to a calm and the restless, tumultuous sea was still and smooth as a sheet of glass. Having enjoyed my early coffee (which is allowed to all men in the navy as a ship's ration), I seated myself in the starboard gangway to watch the grandeur of the rising sun, and soon began to think of the pleasures I had left behind to come into this every-day-alike life while on the water. The others of the watch around the decks were sipping their early coffee and watching the fish playing around the ship. Some of them looked very glum, the faces of others were lighted up with a bright and felicitous smile, while others paced the decks with a restless step and downcast eye, criticising those who were enjoying themselves and probably wishing they had never left their homes, yet looking

forward to a very bright career. It was now a quarter to five, and the shrill whistle of the boatswain's mate could be heard calling to my watch: "Turn to!" and there was no more time for reverie and pleasant dreams. "Scrub and wash clothes!" was ordered — three quarters of an hour for this task, which would enable a man to wash three or four pieces. Every sailor is a good "washman," for they soon become initiated into the art of washing clothes after enlisting in the navy.

The commanding officer coming on deck and seeing the sails flapping about, gave an order to the officer of the deck to have fires started under the port main boilers. The officer of the deck sung out:

"Messenger boy!"

"Sir?"

"Go to the engineer on watch, and tell him to start fires under the port main boilers."

"Ay, ay, sir!"

It was now close on to seven bells, clothes had been scrubbed, deck washed, and bright work had been cleaned; in fact, all dirty work had been completed to make the ship look wholesome for the day, when the engineer on watch reported:

"All ready to start steaming."

This report having been sent to the captain brought forth orders to the executive officer, who ranks next to the captain, to furl all sails and start steam. We then started ahead under steam, which sent the old ship plowing through the water at the rate of eight knots an hour, all sail being furled. A loud shout from aloft, "Sail-ho!" brought all hands on the forecastle to see if they could distinguish what direction the sail might be, but as a sail can be seen a great distance from the masthead, none was visible from the deck. By 10 A.M. we overhauled the sailing vessel, which proved to be a British bark, and upon receiving her signals found she hailed from Glasgow, and was on

her way from New York to Madras. We then exchanged friendly greetings by dipping our ensign three times in succession, and then parted company. She was sighted by us in latitude 38° 10′ north, longitude 30° west.

During the afternoon we sighted several water-spouts, but they all burst before reaching us, and were succeeded by light rain squalls. Another sail was sighted on our starboard bow, but could not make out her nationality owing to the great distance between us. In the evening the band again played some very good selections.

During the 24th, 25th, and 26th of October we were driving under steam and close topsails through heavy seas and strong rain squalls, accompanied with thunder and lightning. On the morning of the 27th the weather cleared up, the sun being welcomed by all hands. The watch on deck shook the reefs out of the topsails and made all plain sail. This day being Sunday, and also a day for inspection of the ship and crew by the commanding officer, and the weather looking promising, orders were given for the crew to put on their best mustering clothes. By three bells the ship was as clean as a new pin, fore and aft, with the men and officers looking very tidy in their best uniforms and waiting at their respective stations for the commanding officer to inspect them. On the approach to each division the commanding officer is saluted both by commanding officers and the men, and the inspection then proceeds. Any man not found to be in uniform at inspection, according to regulations is put on the report and is punished on the following morning, when hauled up to the "stick," which is a name given to the mast where punishments are awarded. This routine is carried out every Sunday on all man-of-war ships in the United States Navy. After inspection of the crew the commanding officer inspects the ship and messes from stem to stern, searching all the store-rooms and nooks and corners on the ship. So you see poor Jack has not the least chance of

stowing away a thimbleful in case of his needing it at any time. Next comes Divine service, which is held every Sunday when weather and other circumstances will permit. At noon observations were taken, and we found we were in latitude 39° 15′ north, and longitude 48° 30′ west. It was now getting excellent weather, royal yards were sent aloft and crossed, and light gear bent, also the weather stun-sails. This fine weather being propitious, advantage was taken to scrub bags and hammocks, which are always scrubbed once a month at least, when weather will permit. The ship also underwent an overhauling and cleaning in general.

On November 1st we heard a loud cry of "Land ho!" from the lookout at the masthead, and on making inquiries as to the direction of the land were told it was two points on the port bow. Of course one may easily imagine the many eager faces which would crowd on the bows of the vessel with dilated eyes, trying to depict land on the almost dim and invisible horizon, but before two hours had passed our exertions and expectations were rewarded by the sight of the Island of Flores, belonging to the Portuguese and situated about seventy-five miles from Fayal. In the evening all hands were called to square yards, send down royal yards, stun-sail and gear, and make all preparations for a spruce and tidy appearance upon arrival in port.

At 9 P.M. we slowed down the engines to half speed, and at last dropped anchor for the night, it being too dark and dangerous to proceed further with a large vessel. On the following morning, November 2d, we steamed into Horta Bay, town of Fayal, Azores Islands, and came to anchor about one mile outside the town, which had a very picturesque appearance from our vessel. At 8 A.M. the Portuguese ensign was hoisted at the fore, and we fired a national salute of twenty-one guns, which was returned almost immediately from the fort on shore.

Our stay at Fayal was very brief, so of course nothing

but a meager description of the place can be given. We stayed only two days there—just time to take a sufficient supply of coal and provisions on board.

Upon our arrival at this place, Uncle Sam's Consul came on board to pay his respects to the captain and officers, and was received with all the honors due his rank.

The Azores, or Western Islands, as they are called, lying between latitude 38° 1′ north, and longitude 39° 45′ west, belong to Portugal, and are composed of nine small islands—viz., Carvo and Flores to the N.W., Granoso, Fayal, San George, Pico, and Terceira in the center, and San Migner and San Maria to the S.E., besides one islet and a bank called Jormigara, a short distance to the N.E. of San Maria. The Portuguese called the group Azores, having derived their name from "acor" or "azor," a hawk.

The first European discovery of the group is clamied by the Flemish—a merchant, Van der Burg, having been wrecked on these shores in 1439. In 1459 these islands were colonized, planted and cultivated, and the place being very fertile, the inhabitants rapidly increased and multiplied. They fell, with other Portuguese possessions, under the dominion of Spain, and returned to their former owners within a short time, and attracted some attention in the conquest between the parties contending for the throne of Portugal, Queen Maria's authority being eventually established through gout (?), one of those striking occurrences in nature which is sometimes exhibited in this world.

The creation of new islands from the bosom of the ocean is related by Hircher in his "Members Lubberraneus." He describes it was by violent earthquakes which lasted for eight days, and then a fire broke out from the surface of the sea and rose to the clouds, while vast quantities of stones, earth, sand, and minerals were at the same time vomited out. At length a group of rocks burst forth which gradually increased until they covered an area of several

miles in circumference, and after being shattered by a new earthquake, ultimately settled into a solid consistency.

A similar phenomenon, according to the philosophical theory, occurred on the 19th of December, 1720, near Terceira, and another on June 11th, 1811, about half a league from the western extremity of San Miguel.

On the 13th of the same month an eruption occurred which formed into an island in the sea, and which was given the name of Sabrina, by the commander of the British man-of-war of that name, who witnessed the explosion. This island was eventually worn away by the washing of the sea and is now only to be traced by a submarine wire fifteen fathoms below the surface of the sea.

In the early part of June, 1867, after many severe shocks of earthquake, a violent eruption occurred which brought a mass of rocks near Terceira Island, and about nine miles north-west of Serrela Point, which eventually became an island.

On the 17th of June this island entirely disappeared, and all efforts to find a bottom with the sounding lead proved futile, although one hundred and eighty fathoms below the surface, and a more recent search has failed to bring forth any light as to the disappearance of the island or of the depth of its former position.

The Island of Pico takes its name from the highest mountain of the archipelago group, which is seven thousand six hundred and thirteen feet high, is irregularly shaped, being wide and rounded to the W.N.W., and narrow to the E.S.E. Although the island runs up from the shore precipitously, the acclivity of the western part is the greatest and is almost entirely occupied by the mountain of Pico. This mountain is of tolerably regular conical shape, truncated near the top so that the edge has the appearance of a right line inclining slightly to the east, and from the middle of the plateau rises a very sharp and regular conical peak. From its base to about one half of

its height it is covered with vines and orange groves, and during one quarter of the year is covered with bushes; the upper part is of bare rock and patches of grass. The ascent even of the sugar-loaf is possible. The peak is filled with dark volcanic caverns, which have frequently emitted smoke, flames and ashes, and can be viewed to great advantage on a clear day, as on other days the clouds cover the mountain to a large extent, leaving about only one half of it visible.

At the foot of the mountain toward the east is a spring of fresh water, generally cold, but at times so heated by the subterraneous fire as to rush out in torrents in a boiling state, sending forth a stream of sulphurous vapors, petrified stones, etc. In clear weather the peak can be seen seventy-two miles, and sometimes at a greater distance; the southern face is quite steep, but that of the northern even more so.

Many secondary heights lie west of the peak, and line the west coast of the island. Comprising these are Gaheza, Grande, Gaheza das Cases, Calicza, Braho, Agas-do-Pao, Serra Gorda and Saluda, which is the central part of the island. The island shows many traces of volcanic eruptions, and seen from a long distance has the appearance of a variety of mountains, the bases of which are at sea level. There are several towns and villages in Pico. The soil, being chiefly pulverized lava, is not favorable for producing grain, necessitating the importation of the greater part of the wheat and maize used for consumption from the neighboring island. Wine is the staple commodity, and is reputed the best in the Azores. Cattle are various, numerous and excellent; fruits are abundant and fine. Besides these productions, there are various kinds of lumber obtainable, together with cedar and a beautiful kind of yew, which is called leixo, and which is remarkably solid and fine. The town of Horta, on the Island of Fayal, is regularly laid out, and well built on a slope. At the

foot of Mount Carnerio, eight hundred and eighty-six feet high on the conical hill, the base of which is parallel with the south of the town, and to the north-west of Lueimada Hill, is a hill with two summits, two hundred and eight feet high, named Alosso. In the town there are several large buildings, among which is the Convent of San Francisco, with two towers, a little to the north of Fort Sana; also the Jesuit College, near which is a very convenient watering-place, the Carmelite Convent, which lies to the westward of the town, and La Mairiy and La Canceicao to the northward of it. A little further to the northward is Stone Hill, five hundred and ninety-four feet high, nearly on a W.N.W. line, on the eminence of which the signal station stands.

The Flamingos River flows in the valley at the foot of these heights, and the Hill of San Smaro, which is five hundred and fifty-three feet high, and forms at the northern part of the town, between the forts of Lagoa and Boom Tesus, a lake which has no outlet.

The entrance to Horta Bay is about one mile and three quarters wide, and is subject to the N.E. and southerly winds, which are very dangerous and destructive at times to the coast, and when they set in, it is time for vessels to vacate the harbor and put to sea.

On March 20th, 1876, the construction of a breakwater was commenced in this bay, which, when completed, will afford very comfortable shelter for more than sixty large vessels. This important work is in rapid progress, and it is expected to be completed in four or five years, and when completed the port of Fayal will be considered one of the safest in the world.

On November 3d, the citizens of Horta received the sorrowful news of the death of their king, Luis of Portugal. The town was accordingly draped in mourning and minute guns were fired at noon, and to participate in this ceremony we half-masted our flag at 8 A.M., and at noon

fired twenty-one minute guns. During the forenoon we were engaged in getting the ship ready for sea. At 12:45 P.M. the last ton of coal had come aboard, and by 2:45 anchor was weighed, and we were once more upon our solitary way to the Islands of Cape de Verde, the next point at which we were to call.

On the afternoon of the following day a strong south-easterly wind favored us, and all hands were immediately called to make sail, no coal nor sails being spared to make the old ship plow through the foaming billows. This kind of weather and the cracking of the old Yankee oak aloft made some of our Western Ocean sailors pull down their caps over their ears. Our scientific passengers were nowhere to be seen, with the exception of Professor Abbe, the meteorologist, who was in company with the captain and officer of the deck, all of whom were standing on the weather side of the after-bridge, holding on to the weather rail, the watch on deck also standing along the weather rail watching the spray and the antics of the vessel, which was bounding up and down in her downy bed, laughing at the exertions of Father Neptune, who struggled hard to get on board. Heavy rain squalls followed this southerly wind, which forced us to shorten sail by degrees.

On the afternoon of the 6th all light sails with corsets were furled, as the wind had now increased to a gale and the rain was descending in torrents. We were still under a full head of steam with topsails, and our captain and the watch on deck were standing by the braces, reef tackles and buntlines. It was getting dusk, and the wind was howling fiercely through the rigging and the lightning playing peek-a-boo through the clouds. The thunder with a clattering noise made heaven and sea shudder. An order was given by the officer of the deck, "Call all hands! Reef topsail." It was now pitch dark, and the lightning illuminating the sea gave the waters a ghastly appearance. All topsails being reefed, the vessel was again put upon

her course. By 7:30 A.M. on the following morning the wind and rain had decreased. The watch on deck shook the reefs out of the topsails and set top-gallant sails. At 9 A.M. we began to rouse up our bow sheet and stern chains. Each chain was brought to the stern capstan, and as the chain came up it was laid along the gangway and swivels, chockles, and fifteen-fathom marks were overhauled and inspected. This was done once every three months.

The weather now was getting most excellent, and with a gentle breeze on our beam we were making good time until the 9th, at 11:30 A.M., when an accident occurred in the engineer's department. The wartling ring in the main steam valve broke. We were then obliged to stop steam until 9:45 P.M., by which time the damage had been repaired, and we were all glad to be off again.

The two following days we were engaged in scrubbing, holy-stoning decks, and cleaning up in general, preparatory to arriving in port.

On the 10th of November we were all overjoyed to hear the news of land on our starboard bow, which proved to be the Cape Verde Islands. After dinner, both watches were called on deck to furl sail, square yards, unbend chafing gear, and work ship. At 8:45 P.M. we came to anchor in the Bay of Porto Grande.

Preparations for coaling ship were immediately made, and the port and starboard batteries run amidship. Canvas was placed in the ports to preserve cleanliness, and the coaling screen put across the half deck to prevent coal-dust from penetrating the after part of the ship.

The following morning the ship was visited by the health officer, who always comes aboard every ship going into port, to ascertain the health of the crew, and whether there are any contagious diseases on board. After receiving the health report we were permitted to land. We then began

the unpleasant task of receiving coal, which was delivered on board by the native negroes, owing to the heat being too excessive for our unacclimatized sailors. Awnings were spread day and night, and no drill or work of any sort was allowed on board. No liberty was granted the crew, except to caterers of messes, who had to go ashore to purchase fresh provisions. On their return they had the appearance of having enjoyed the privilege extended them.

The Cape Verde Islands lie between the parallels of 14° 46′ and 17° 12′ north latitude, and the meridians of 22° 40′ and 25° 22′ west longitude. They were discovered on the 3d day of March, 1460, by Antonio Noli, a Genoese in the service of the King of Portugal. This group is distant about one hundred and thirty-five leagues from Cape Verde. The islands, twelve in number, are divided into three groups—viz., the north-western, including St. Antonio, St. Vincent, Santa Lucia, Branta, Raza, and St. Nicholas, all of which lie E.S.E. and W.N.W., forming a distinct chain; the north-eastern, including Sue and Bannista, both being included in the universal name of the Windward Islands; the leeward group, including Mayo, St. Jago, Fayo, and two large rocky islets called the Bombos. The twelve islands are estimated to be one thousand two hundred and forty-one nautical miles in extent, and the population, which is divided into nine districts and twenty-nine parishes, is about sixty thousand. The great majority of the inhabitants are either native Africans or mixed with European blood. The Portuguese, including the convicts, are greatly in the minority and are scattered among the islands, employing their time and gaining their livelihood as merchants, artisans, etc. The greatest and best virtue in these islanders is their unfailing and unceasing hospitality, but their natural indolence perpetuates their poverty.

These islands, like the Islands of Azores, have the appearance of volcanic origination. Their surface is generally arid and mountainous, rendered perceptible by a certain

amount of acclivity, and there is a scarcity of vegetation except at the bottom of the ravines.

The climate is very hot during the dry season, from December to July; but it is not so unhealthy as during the rainy season, which continues from August to November. During ths season pernicious fevers prevail, and sometimes the yellow fever pays its respects in this climate. The small-pox is very dangerous and creates great havoc among the blacks. The scarcity of water and the droughts which often occur render the harvests very irregular and are the cause of terrible faminés. At times devastating rains are the cause of much misery. In addition to this are the invasions of countless locusts which ravage the fields in a few hours and deprive them of all vegetation. No less than four great famines are recorded. Those of 1773 and 1831 lasted three years. The first carried off one half of the population of St. Jago, and the second more than four twelve hundred souls. In 1846 a part of the inhabitants were obliged to live on herbs, and rice. Indian corn, tapioca, grapes, sugar cane and tobacco are raised in the valleys wherever there is a bed of vegetable earth. Indigo and cotton plants grow without culture, and the tamarind and palm-trees are numerous. The forests are rich but not extensive. The buildings are chiefly built from the wood of cocoa-nut- and fig-trees, all other lumber having been destroyed.

Good water can only be obtained in small quantities. Game, such as partridge, quail, etc., being very scarce.

There is a small number of horses, asses, and mules on some of the islands, and a very good breed of cattle is obtained by crossing the African buffalo and the European cow.

The colonial industry is principally confined to the working of salt mines, the extraction of oil, and a little sugar, the distillation of tofia and the manufacture of cotton and woolen fabrics which are sent to the coast of Africa.

Fish is very plentiful around this island and in all the bays. The principal exports are from the Windward Islands, which consist of coffee, orchal, salt, a seed called purgueira, and goat skins. From the Leeward Islands, salt, goat skins, orchal, coffee, sugar, live birds, etc.

When the rains are abundant, large quantities of corn and beans are exported.

Porto Grande, situated on the north-west side of St. Vincent, is the largest and best bay in the group, and is three and a half miles wide at the entrance of Port Columna on the north of Port Batelda.

The Island of St. Vincent is very high and undulating. Its greatest breadth from north to south is nine miles. Two principal chains facing north-east and south-west surround it, forming in the center a deep gorge, opening to the north-west on the beautiful valley of Porto Grande.

The highest point, two thousand, four hundred and eighty-three feet, is in the middle of the chain. Point Columna is high and abrupt, and at the foot of the cliff, which terminates it, is a large rock which forms a distinct resemblance to a column. The water is very clear, and on a calm day the bottom can be seen at a depth of seven fathoms.

A telegraph cable from Madeira has been landed at Porto Grande, and carried through to Pernambuco, Brazil, making the communication complete between Europe and South America. The island is under the command of a governor-general, who exercises both civil and military power, and the principal vocations of the inhabitants are fishing and coaling.

The most important place is the town of Praya, on the Island of St. Jago. It is the official residence of the governor and civil and military authorities. The former lives part of the time at Bravo, this island being more beneficial to the health than the Island of St. Jago.

The process of coaling was continued all night and until

4 P.M. on the following day, the 12th, by which time we had accumulated two hundred and forty tons of coal in the bunkers, besides stowing forty tons on deck.

Immediately after coaling had ceased all hands were called to get up anchor, and as soon as the anchor was weighed, cat-headed and fished, we put to sea, steering a course south-east, one quarter east, bound to Sierra Leone.

The sun was setting in sublime tranquillity beyond the mountains, whose grandeur and picturesque scenery made the heart loath to leave it for the dark and dismal waters ahead of us, and very shortly as night began to spread its funeral pall around us, the Cape Verde Islands faded away from our sight, and the moon was seen rising timidly above the distant horizon, shedding its peaceful light upon the restless waters, while Father Neptune's fantastical movements and the sea-nymphs' melodies seemed to harmonize with the gentle breeze and create a pleasant sensation in those who were rocked in the cradle of the deep.

The next morning at sunrise we were being wafted along with a very pleasant steady breeze; all fires were banked, propeller uncoupled, and all hands were called to make sail. Our speed was greatly reduced under canvas, and the cool and gentle breeze fanning the sunburned faces of our tars was appreciated a great deal more than the poisonous fumes rising from the burning coal.

In the afternoon a cry of "Land ho!" was heard from the lookout on the fore-topsail yard, and on ascertaining its direction found it was the Island of Fayo, which is situated five hundred miles from Sierra Leone. The weather was excellent, but the heat was so intense as to make the pitch in our decks boil, the thermometer often reading 105° in the shade. The sun's rays heated the metal-work about our spar deck to such an extent as to render it almost impossible to be handled with the naked hands. The evenings were generally cool, bringing a most welcome and refreshing breeze, which would sweep the sea of

the pestilential atmosphere and range the thermometer to about 80°.

Exercises were observed on board whenever the weather and other circumstances would permit. In the evenings the band would vary our monotonous life with selections, and our always jolly tars would avail themselves of the opportunity and dance to their hearts' content, while on the opposite side of the deck would be collected the eccentric old tars whose only comfort was a short black clay and a piece of the "weed."

On the evening of the 17th of November an order was given to the lookouts to keep a bright lookout for land ahead. It was a beautiful summer evening, the sea was calm and the stars were shining brightly overhead, but the distant horizon was dark, and long incessant streaks of lightning could be seen piercing the atmosphere with unusual severity. Both officers and men had assembled on the spar deck to watch the disappearing twilight and admire the beautiful tints which had been left in the sky by the setting of the sun, whose red-hot glory had vanished for the day. In these latitudes some very beautiful sunsets are to be seen, dazzling to the eye of the spectator and which only the lips of a poet, or the brush of an artist could picture. An observation of the constellations was made at night, and we found ourselves to be in latitude 9° 13′ north, and longitude 16° 21′ west.

In the forenoon a cry of "Land ho!" from the foretopsail yard was heard, and at 4:30 P.M. we came in sight of Sierra Leone and dropped our starboard anchor in the harbor of Freetown. The usual preparations were made in the evening to receive coal. On the following morning at 8 A.M. a national salute of twenty-one guns was fired, with the English ensign at the fore, which salute was returned gun for gun with the glorious Stars and Strips swaying from the fort on shore.

Coal could not be procured at this port at any price, so

we were obliged to load our bunkers with a patent fuel which comes from Cardiff, England, and is made up into square blocks, very convenient for handling, but very uncomfortable for burning, as it makes such an intense smoke, and fills the ship with fine dust.

During the day we were honored with a visit from a Diplomatic Class of visitors from Freetown, who each paid their respects, and were received aboard with all honors. Among the visitors was the Lieutenant-Governor of Sierra Leone, who received a salute of seventeen guns on his departure.

No liberty was granted the crew owing to our short stay in this port.

There is not much difference between the temperature of this port and Porto Grande, although this port lies much nearer the equator. I observed the thermometer one day, which read 97°—the general average of Porto Grande being 90° to 95°—these readings being taken in the shade.

The colony of Sierra Leone, the most important of English possessions on the west coast of Africa, includes the peninsula, on which Freetown is situated, where the first English establishment was founded, in 1719. The population numbers over sixty-seven thousand inhabitants, of whom only about one hundred and fifty are whites. The principal productions of the colony are cotton, ginger, arrowroot, vegetables, and fruits of various descriptions. The exports are wax, copal, gum, elephants' teeth, tusks, etc., hides, coffee, wood, gold, etc. The articles of consumption, and which are nearly all imported, are cotton stuffs, rum, hardware, tobacco, glassware, linen, ready-made clothing, etc. The importations are mostly from England, while the exportations of gold are almost entirely to France.

Sierra Leone is a chain of mountains which rise three thousand two hundred feet above the level of the sea, and from which the country takes its name. This chain across

the entire peninsula from N.N.W. to S.S.W. is marked in the center by the two prominent peaks of Tagrin, which link quite close to each other, and at its southern extremity by the highest peak, which is well-known as the Mule's Ears.

The land presents every appearance of volcanic origin, and nearly throughout is covered by a rich vegetation, except the bare patches, which are of a reddish-brown color.

The peninsula is bounded on the north by the Sierra Leone River, and on the south by Colmant Creek and Yawry Bay. The colony is divided into numerous parishes, is the seat of a bishop, and is ruled by a Crown-appointed governor, who is assisted by a council.

In 1866 Sierra Leone, the Gambia, Gold Coast, and Lagos were placed under one general government to be called the "Government of the West African Settlements."

Freetown, founded in 1787, was established in 1792, when four hundred and seventy-two destitute negroes were removed to it from London by a body of philanthropists; and one thousand one hundred and ninety-six negroes were sent there also from Nova Scotia, that climate having proved too severe for them. The city is built on inclining land, and is the residence of the governor-in-chief, as also of the civil and military authorities. The houses are constructed in modern English style and are very comfortable. The streets are straight, and, although very clean, are rude and unpaved as compared with our streets of to-day. On an elevation at the back of the city stands Fort Thornton, the residence of the governor. The city is defended by a battery situated on the northern side and which faces the sea, forming a good protection for the inhabitants. Still further back on an elevated plateau is the hospital and barracks in which her majesty's troops reside.

The climate of Freetown is unhealthy, the wet season lasting from May to December. It is especially pestilen-

tial, although it has been noticed that the troops quartered on the hill at an elevation of four hundred feet are exempt from most epidemics and African fevers, which are greatly dreaded, especially among the blacks.

All kinds of supplies can be obtained at this port, but the prices being very high, few ships purchase them unless in cases of absolute necessity. Fruits and vegetables are both excellent and abundant. The court of Freetown adjudges the validity of prizes captured in the slave traffic by English cruisers. The population is made up of all the mixed races of the African coast. A great part of it comprises the negroes released from the slave ships. This black population is more advanced than any other of their color on the coast, but hold a far advanced and exaggerated idea as to their rights, seeming to ignore all duties of whatever description, even those for their own protection and that of the government. The colony is in a state of transformation. The native influence is gradually substituting itself for and opposing that of England more and more each day. Nearly all of the men can read and write English; numerous schools are established in the city for the education of the children, and religious societies endeavor to plant the germs of the Christian religion in the minds of the people.

Coaling ship was performed by the "Kroo men," who are negroes who were captured from the slave ships by the English cruisers and granted life-long liberty. To identify them should they be recaptured they were all tattooed on the forehead with India ink, a law being passed that if any ship was caught in the act of transporting or trading with negroes having the English brand upon them, their owners would render themselves liable to a heavy fine or imprisonment. This mark of distinction renders the blacks very proud, and they will not recognize or converse with others who are devoid of it.

The process of coaling which was done by these Kroo

boys was kept up all night until the 20th at noon, by which time we had received sufficient coal on board to carry us to Cape Coast Castle. Preparations for sea had been made during the forenoon and by 6:15 P.M. our last boat was hoisted into the davits and all hands called to weigh anchor.

Our passage along the coast was ordinarily fine. Now and then we would meet with a rain squall, which would be appreciated by most of the crew for the fresh water it would bring them—for to them fresh water was a great luxury, and on the approach of a squall all hands might be seen standing with buckets ready to catch the precious drops.

Our scientific party on board had now got initiated into sea life and seemed to enjoy and appreciate the pleasant weather. As we began to approach the Gulf of Guinea the weather had the appearance of being hazy, which increased to a heavy fog. The lead was accordingly cast to ascertain the depth of water we were in, which was found to be from eight to ten fathoms.

On the morning of the 26th of November preparations were again made for port. Land was not reported until one o'clock, owing to the dense fog. The lookout could not see many miles distant; our speed was greatly reduced, and we had to feel our way along. At 6:15 we cast anchor in five fathoms of water and two miles from Cape Coast Castle. We had not been at anchor long ere a little boat flying a blue flag was seen pulling toward us from the shore. The boat was sculled by eight natives, each one having a trident for a paddle, and with each stroke the leader would give a yell which was taken up by the others. This confusion was kept up until the boat reached our vessel, when a young-looking mulatto came aboard and stated in pretty fair English that he was the health officer of the port, and wished to see our doctor. Having had a short interview with the doctor, inquiries were made as to our

prospects of purchasing coal, to which he replied that coal could not be procured at Cape Coast Castle, but that we could be furnished with the same at Elmina, a small port about six miles down the coast. This was indeed discouraging news. The chain was immediately brought to the steam capstans, and all hands were called to get up anchor, and very shortly the ancient castle, which has still many rumors of unpleasant reminiscences, was lost to sight. At 8 P.M. we arrived at Elmina, and there let go our port anchor. At daylight on the following day a signal was hoisted, requesting *pratique* be granted, in response to which the health officer from shore soon appeared, and after seeing our health report granted the necessary permission.

Preparations to receive coal were made during the morning, and by 11 A.M. the work had earnestly begun. Before entering upon the details of the experiences of the Eclipse Expedition on the west coast of Africa, I will give my readers a brief description of the continent of Africa, which I have no doubt will be interesting to those who have not already read about the "Dark Continent," as it is called.

Africa lies between the latitudes of 37° 20′ north, and 34° 50′ south, and longitude 17° 30′ west, and 51° 30′ east, being almost wholly within the tropics. Its greatest length, measured from Cape Aguthees, east of the Cape of Good Hope to Cape Branco, near Bizerta, in Tunis, is four thousand three hundred and thirty geographical miles, and its greatest width from Cape Verde, on the Atlantic, to Cape Guardafui, on the Indian Ocean, is four thousand geographical miles. The entire area of the continent, exclusive of Madagascar and the other African islands, is estimated at eleven million, three hundred and sixty thousand statute square miles. The coast line of Africa is remarkable for its continuity as well as for its lack of harbors. It is about sixteen thousand miles in

length, so that for every seven hundred and ten miles of continental area, according to the estimates above given, there is only one linear mile of coast, a smaller proportion of sea-shore to surface than is contained in America, Asia, or Europe.

The maritime edge of the great South African plateau is bounded for the greater part by chains of mountains of various altitudes, with shelving plains on their seaward slope. Between the east and west coasts, which border the table-land, there is a marked difference. Along the Atlantic a series of terraces rise into the interior, intersected, in some localities, by low, level plains and fever-breeding swamps, and in others by grassy tracts and extensive forests. The highest of these terraces does not exceed two thousand feet above sea level.

Africa has long been regarded as distinctly and pre-eminently the country of deserts. The Sahara extends over almost all the northern portion of the continent, from latitude 15° 30′ north, the average width being one thousand miles, and in extreme length three thousand miles; it stretches from the River Nile to the Atlantic Ocean, and from the southern slopes of the Atlas to the Soudan, covering an area which exceeds that of the Mediterranean, and with a surface in some places above the level of the sea.

The southern limits of this vast area of the Land of Desolation have never been continuously traced by Europeans, and our knowledge of its trackless wastes is confined to the ancient times of caravan travel across them. Rain throughout this sterile land is almost unknown, the heat being tremendous. At the equinoctial season the easterly wind which blows during three fourths of the year rises at times to a gale, and causes the terrible sand-storms by which caravans have been so frequently overtaken.

The western part of the Sahara, called "Sohel," is the wildest and most desolate. The dreaded wind known as

the simoom is a source of great anxiety to travelers across the desert and to the neighboring towns and villages. It is due chiefly to the high temperature, which sometimes reaches 200° Fahrenheit, caused by the surface sand of the desert, under the influence of the vertical rays of the sun pouring down upon it through an intensely dry atmosphere. The furnace-like wind, to which this gives rise, is rendered still more terrible by the particles of burning sand with which it is impregnated, and which gives the atmosphere the reddish hue characteristic of the simoom. Bukharat, in 1813, recorded 122° Fahrenheit in the shade during the prevalence of this destroying blast, and 144° was observed in 1861 by Sir Samuel Baker.

The greatest desert of Southern Africa is the Kalahari. Its average elevation above the sea level is six hundred feet. Although termed desert, the Kalahari is not entirely destitute of vegetation. Rain seldom refreshes any of these arid tracts, but when it does they are at once carpeted with the richest verdure. The precious metals do not seem to be very generally distributed throughout Africa, and so far as is at present known, the mineral productions are neither abundant nor varied. Until the discovery of gold in Australia and California, however, the gold fields of Guinea in the Kong Mountains were esteemed as being the most important sources of the world's supply. Iron and copper have been discovered in many parts of intertropical Africa, and coal cropping out along the banks of the Zambesi. Salt is said to be plentiful in almost every place on the continent. Extensive diamond fields producing many stones of fine quality and great size were discovered in 1867 in the districts of the Orange River and near its concourse with the Vaal. The diamond called the "Star of South Africa," and which was found shortly after the opening of the diggings, was sold in its rough state for eleven thousand five hundred pounds sterling. Senegal is noted for the mighty "Baobule," and

curious pandamus candelabrum; Guinea for the valuable oil-yielding palm, and Cape Colony for the many species of finely colored aloes. The west coast of Africa, from the Sahara to Cape Negoo, comprises three divisions, known as Senegambia, Upper Guinea, and Lower Guinea, each of which contains a number of native states and various European colonial establishments.

Liberia, a republic founded for the emancipated negroes from the United States, occupies a portion of the coast north-west of Cape Palmas. Natal, also an English colony, was discovered on Christmas-day, in 1497, by Vasco da Gama.

Ashantee, the most notable of the existing savage kingdoms, is on the west coast of Africa. Its boundaries are not accurately defined, but approximately the kingdom may be considered the region fronting the Gold Coast between 5° and 10° north and 6° west. Until the commencement of the present century Ashantee was unheard of by Europeans, for the Fantee, a hostile tribe, occupied the coast.

In 1807 Osai Tutu was King of Ashantee. He appears to have subjugated many of the neighboring tribes. Two of his tributary chiefs having fled to the Fantee country, Osai demanded that they should be given up to him, and the demand being refused, the Ashantee messengers were put to death. Osai thereupon made an invasion into the Fantee country, which he ravaged down to the coast. The British, who had a fort at Anamboe, on the coast, undertook to shelter the flying Fantees. The Ashantees invaded the fort and compelled the British governor to ask for peace. This peace was of brief duration. In 1817 the Ashantees again invaded the Fantee country and took possession of it, their acquisition by right of conquest being recognized by the British governor of the fort. In 1823 the Fantees, encouraged by the British, rose against the Ashantees, who again marched into their country. Sir

Charles McCarthy, the British governor of the Gold Coast, undertook to chastise the invaders, and a sharp action took place on January 21st, 1824, in which the British were defeated, nearly all the officers being killed. The victorious Ashantees came near capturing the British stronghold of Cape Coast Castle, but sickness coming upon them, they were obliged to withdraw to their own country.

Since that time the Ashantees have kept aloof from the seaboard, but appear to have extended their dominions into the interior. Now and again travelers have made their way to Coomassie, the Ashantee capital, in latitude 6° 51′ north, longitude 2° 16′ west, and they report that the government is an absolute despotism. The king is a great property owner, and is the legal heir of all his subjects. Slavery exists on a large scale, many of the nobles having as many as one thousand slaves. Up to within a few years ago the slave trade paid and brought large incomes to their masters, but in these times slavery is being rapidly abolished. Polygamy is carried on to a large extent among the Ashantees. The importance of a man is measured by the number of his wives, for these are the cheapest laborers. The king, it is said, is limited to three thousand three hundred and thirty-three wives, who during the working season are widely scattered over his plantations, while at home in the capital they occupy two streets, where they are all secluded from everybody but the king and his female relatives. Any male person who even looks upon them is punished by death. As to their religion, human sacrifices seem to constitute its distinguishing feature. The soil is fertile, producing every kind of tropical grain and fruit. The abundance of gold which is displayed about their persons shows that mines are common and gold plentiful. Many of the richest mines are held sacred to the divinities, and therefore are not worked. Among the special industries may be mentioned a beautiful fabric of cotton woven in strips four

inches wide and afterward sewed together. A considerable commerce is caried on between Coomassie and Hoosa, Bormoo, Timbuctoo, and other places in the interior. The population is estimated at over four millions.

Since I have given a very brief description of the interior of Africa, I will not close my chapter without letting my reader take a peep at the River Congo. The discovery of the mouth of the Congo is due to Diego Cao, or Cam, a Portuguese naval officer, and gentleman of the household of Don Joao II., King of Portugal. This event occurred in the year 1484–5, while, according to Duante Lopez, a naval expedition was sailing along the coast of Africa for the purpose of discovering the East Indies. To commemorate the discovery, the commander of the fleet erected a pillar on the southern point of the *débouchure*, by which the river became known for a time as the Rio de Padrào, or Pillar River, flowing through the Kingdom of Congo.

Martin de Behaim, who was present at the discovery, called it the Rio Paderoso, or Mighty River, from the immense volume of water that is discharged by it into the ocean.

Lopez, who visited Anjola in 1578, describes it as the "greatest river in Congo, called Taire in that tongue, which signifies 'I know.'" Through the sheer impossibility of describing to others what I can not consistently, with the local knowledge I possess, explain to myself, I am constrained to draw the reader's attention to an expedition dispatched by the British Government in the year 1816 under Captain James Kingstone Tuckey, which was the means of giving us reliable, accurate, and definite information of the Lower Congo, although only to the extent of one hundred and seventy-two statute miles inland. In all eighteen persons died within the short period of less than three months during which they remained on the river, or a few days after leaving it: fourteen of the party of thirty who set out on the land journey beyond the cata-

racts; the other four were attacked on board the vessel "Congo," which was to take them up the river. Two died during the passage out.

When treating of the climate I shall have occasion to explain the causes which led to this excessive mortality among the members of this unfortunate expedition, which, however disastrous it may have been to life, furnished to geographical science a very valuable contribution. For the first time the Lower Congo was shorn of all myth and fable, and was described with an accuracy that can not be much excelled even in the present day.

Cruisers of many nations have visited the great river at various times since, and naval officers have added much to our knowledge of the river's depth, and of its currents, besides giving the names of factories and trading depots situated along the banks. But the melancholy loss of life incurred by Captain Tuckey's expedition served to warn off all scientific missions for a period of over half a century.

It is stated that in the archives of St. Paul de Loanda there is a document dated 1750 by which the King of Congo ceded to the Portuguese all of the coast from the Pillar Point at the mouth of the Congo to the Kwanja River as a reward for the aid given to the distressed king during the savage invasion.

Congo land I find to be an inland country bounded on the south by the upper part of the Ambrizeete River. Its western boundary runs northerly to a point thirty miles from Nokki. The chief's town is called by the natives Ambassi, but the Portuguese still call it by the name of San Salvador. All the rest of the country on the left bank of the river and along the seacoast is absorbed by minute subdivisions of power under many chiefs, or, as it generally happens, under many groups of elders ranging, according to the size of the district, from three to ten persons. The native title of a chief, or of an elder, possessing two

or three slaves, is "Nfumu," originally meaning "king." Now, however, slave-owners having become so numerous, the title has descended from the fortunate victor over thousands, who became owner of the captives of their bodies, as well as their liberties, in the olden times, to the arrogant and ambitious slave who, by dint of roguery, shrewdness, and frugality, has succeeded in amassing property sufficient to purchase two slaves.

Here and there along the left bank a native suzerain may be found whose nominal power extends over an area approaching to a thousand square miles, to whom a certain amount of respect and obedience is shown by a large number of village chiefs.

The Ba Kongo of Pallaballa are a finer race of people than the degraded negroid Mu-shi-Kongo of the coast. Yet they do not display an entirely Bantu type, such as one sees in the Ba-yansi of the upper river. Their skin, however, is not the dead coal black of the coast tribes, but is often a warm chocolate or ruddy brown. They do not practice much personal adornment, either by cicatrization, tattooing, or painting the skin with divers pigments. They are naturally a hairy race, especially about the face, some of the chiefs wearing flowing beards, whiskers, and mustache; but on the body the pile is plucked out from the age of puberty, otherwise their bodies would be partially covered with short curly hair. The two front incisor teeth in the upper jaw are occasionally chipped, but this is not a regular custom, as it is further up the river. Also among the Manyanga and the surrounding districts large nose-rings are passed through the septum of the nose, and ear-rings are frequently worn. Circumcision is everywhere practiced on the males, and will be treated of in its place as a semi-religious rite.

In character the Ba-Kongo are indolent, fickle, and sensual. They dislike bloodshed, as a general rule, and save for certain superstitious customs are rarely cruel, showing

kindness and gentleness to animals. When their passions are excited, however, by fear of witchcraft or a wish to revenge grave injuries, they can become very demons of fanatical rage; and the people who, in their calmer moments, will shudder at an abrasion of the skin in a friend or neighbor, will, when one is convicted of sorcery, leap and shout with frenzied joy around his fiery stake while he frizzles alive. Witch or wizard-burning (as a rule there are more witches killed) is very common among the debased tribes of the coast, and the poison ordeal prevails largely over the Lower Congo lands. In fact, in many a Congo village life is rendered miserable by the constant accusations of sorcery. At Pallaballa, for instance, for every one—child, man, or woman—who dies somebody is suspected of having caused the death by supernatural means, and the old Ngnanga or "medicine man," who holds the inquest over the corpse, is called upon to detect the guilty person, and generally fixes upon those possessed of worldly goods, in order that they may buy him off. Should the accused, however, through strength of public opinion, be unable to evade the charge, he or she is compelled to take the casca, the infusion of a poisonous bark. According as the proportion is regulated in strength by the Ngnanga, the suspected person will either vomit the poison and recover, die at once from the effects, or retain it on the stomach and not die, in which latter case the natives have rare sport in hacking the ill-doer to pieces with their blunt knives, or in cooking their victim over a slow fire.

I will now bring my reader's attention back to Elmina, where we were taking our coal on board.

Elmina, or St. George the Minor, is a British settlement on the Gold Coast, lower than Southern Guinea, at the mouth of the River Beyak, about six miles west of Cape Coast Castle, in 5° 5′ north, longitude 1° 20′ west. It was first discovered by the Portuguese in 1487, while

wending their way southward in quest of a passage to India, and they have retained nominal possession of the whole of Lower Guinea, the chief states of which are Loongo, Congo, Angola, and Benguela. The Dutch, French, and English also established various settlements, or rather factories, particularly Upper Guinea, the coast of which is now divided into Grain Coast, Ivory Coast, Gold Coast, and Slave Coast. The population of Elmina is about fifteen thousand. The native town is very irregular and dirty. The inhabitants are chiefly fishermen and traders, and their traders and slaves are employed as mechanics, but there are a few mulattoes who are very wealthy. In the neighborhood are some fine country residences and cultivated farms. The surrounding country is undulating and thickly wooded. The town is defended by a castle built on a low, rocky peninsula extending from the east bank of the river. The point is surrounded by a bed of rocks, on which the sea breaks with tremendous fury.

The Castle, the oldest European structure on the Guinea coast, was begun by the Portuguese about 1741, who were eighty years building it. It is secured against an attack from any native force. There is another large defensive work, the Fort of St. Jago, which commands the Castle. The climate is reputed to be fatal to Europeans.

Elmina was captured by the Dutch in 1837, and was ceded to them by Portugal in 1841. In 1872 it was transferred, together with other Dutch settlements on the coast, to Great Britain. The transfer resulted in war with the Ashantees in 1873, and on the 13th of June the territories of the native kings quartered off Elmina were bombarded and burned by the British because the inhabitants had supplied the Ashantees with munitions of war. To-day being the 28th of November, is Thanksgiving-day, and the U. S. S. "Pensacola" is still lying at her anchor in Elmina Bay and the sun striking down upon us with energy and full tropical

force. Aloft could be seen Uncle Sam's tars busy at work setting up the rigging. On the spar-deck are the officers and industrious blacksmith with his portable forge at full blaze. On the gun-deck are the half-naked "Kroo boys" performing the duty of coaling the ship.

At 8:30 P.M. we weighed anchor and steamed down the coast, bound for St. Paul de Loanda, the object of our interest. The following day a light breeze sprung up from the south-west and all plain sail was made, but before evening the ever-welcome wind had disappeared, and all square sails had to be furled. On the following morning, the 2d of December, we encountered a heavy rain and thunder-storm, which lasted several hours. Calms, variable winds, rain and thunder-storms are frequently experienced in these latitudes. At 4 P.M. high land was reported from aloft, which proved to be the Island of St. Thomas.

During the afternoon a rumor was going about the ship that "Father Neptune, King of the Sea," was coming aboard to pay his respects to all of those young fellows who had not yet crossed the line. It greatly pleased all the old salts who had already been initiated by Father Neptune, also our navigator, who offered all the assistance he could render to receive the honored guest with all the dignity due his rank. But when the news reached the ears of our marines on board it met with opposition. They demanded to see the captain, he being the only person who could excuse them from undergoing this unpleasant initiation, and it was disagreeable news to us to hear that the commanding officer would not allow them to be initiated. The distinction which was made between the marines and the crew upon an occasion which only occurs when a vessel crosses the line was felt very keenly by us all, and consequently he did not board us when we crossed the equator, where he rides leisurely, waiting for new-comers upon his equatorial marine horse.

On the morning of the 5th of December we noticed the water had become discolored, which was due to the intermixture of the Congo River and the sea—for we were now at the mouth of the Congo, a description of which I have already given. The water changed from a blue to a reddish-brown, and now and again could be seen floating islands of drifting weed, which had come from the river on a three-knot current wending its way seaward. At sundown, we being past the Congo, the water began to resume its dark-blue color. On the morning of the 6th the weather was hazy, with drizzling rain, just sufficient to make it very disagreeable. At 9 A.M. the weather cleared up, and high land was reported two points off the port bow. Shortly afterward we came in sight of the mainland.

In the afternoon we passed several coasters, among them being a Portuguese naval training ship bound down the coast. At 11:30 P.M. we let go our anchor in St. Paul de Loanda. Immediately on landing at Loanda it was discovered that the Rio Luanza steamer, which sails bi-weekly for Muxima, had left two days previously, and that recent washouts along the line of the Camingro de Terra Tras Africano made it impracticable for the expedition to reach either Muxima or Cunga early enough to allow sufficient time for mounting and adjusting the instruments for the eclipse.

The following morning—7th of December—at 8 A.M. a national salute was exchanged. Preparations to receive coal were immediately made, also to leave the Messrs. Brown, the naturalists of the Smithsonian Institute, with assistants, on shore. They were going into the interior for the purpose of collecting specimens of birds, animals, flowers, etc. Mr. E. J. Wright, the photographer; Professor E. D. Preston, magnetic and gravity observer, and assistants, were also landed with their luggage.

We at once weighed anchor for Cape Ledo, which is seventy-five miles down the coast, taking with us Professor

Todd and his party for the purpose of making the observations of the eclipse on the 22d of December.

On the 8th of December at noon we arrived at Cape Ledo, where H. M. S. "Ramble," Commander Langdom, was lying, she being on a mission of the same kind as ourselves, having Mr. Taylor, R. A. S., an English astronomer, on board. I shall never forget the impressions which our first landing on the beach of Cape Ledo made upon me. The sun had just risen; it was getting daylight, the damp night wind was yet blowing, and the heavy swells of the South Atlantic was rolling in loud and high combers upon the beach. We lay on our oars in the swell just outside the surf, waiting for an opportunity to run in. Seeing how matters stood, we swung our boat with her bow on to the great comber which came rolling in, lifting our bow almost perpendicularly and then dropping us again; and just at that moment we gave four or five strong pulls, which sent the boat up on the beach, all the men immediately jumping out and running her up on the sand before the arrival of another breaker, which would probably have smashed her to pieces. We left one man to watch the boat, and the rest of us strolled about the beach, which is about four miles in length and of very smooth sand, and regular. The professor also looked about for a favorable place upon which to erect his instruments. We perceived several tracks of wild animals along the beach, and on the trees were various kinds of birds: cockatoos, parrots, etc. The place is very barren and rocky, with no vegetation and no inhabitants. The heat during the day is intense, and the rain coming down in torrents leaves the air with a cold, damp atmosphere, which makes the climate very unhealthy. We all now returned to our boat, the professors having selected a very favorable spot close to the shore cliffs for their camp, and upon our return to the ship preparations were at once made to get the observatory ashore, which was anything but an easy task for us. Our

vessel was at anchor at a distance of about two miles from the shore, in five fathoms of water, and owing to the shallowness of the water and the heavy surf, it was impossible to use a floating dock for the purpose of landing stores. On the morning of the 9th of December the work was commenced. Water whips on each end of fore and main yards were bent to lower the instruments into the boats, which conveyed them ashore. Something had to be done to land our boats safely on the beach; and for this purpose one kedge anchor and a grapnel was placed in the water about forty yards from the beach, with about five fathoms of four-inch hemp rope bent on to each anchor with a floating buoy attached to the other end of the line, and as each boat, with its bow to the sea, came in to unload they would get hold of the buoy and make fast their bowline, which consisted of fifty fathoms of twenty-four thread stuff. We would then give some good strong pulls on our oars and at the same time ease off the bowline, and as soon as we felt that the sea had hold of us we would boat our oars, and the sea would carry us in with the speed of a race-horse. The instant the boat touched the beach the bowline was made fast, and the crew jumping out would seize the stern line and run up on beach, and in this position we were forced to keep her bows on to the rolling combers. Occasionally the great seas would roll in in regular line, getting larger and larger as they approached shore, and hanging over the beach upon which they were going to break; then their silvery tops would curl over and over, turn white with foam, and break violently against the boat, endeavoring to jerk her away.

In order to get all the instruments and houses safely on the beach we were obliged to carry them on our heads and in our arms to prevent their getting wet. Some of the instruments it required from thirty to forty men to lift and carry. We were always to our waist in water while unloading. Besides the force we had working on the boats,

twenty to thirty sailors were detailed to work on shore under direction of Professor Bigelow, to dig ditches, build foundations, fitting instruments, artificial houses, etc. Another party was detailed under Lieutenant Heilner, to transport the stores to the Eclipse Station. Ten voluntary marines were sent on shore to guard the camp from wild beasts and savages. The latter were found to be plenty. After five days' hard work we succeeded in getting the observatory to the Eclipse Station, but this was greatly due to Lieutenant Heilner's excellent management of the men under his charge.

The provisions began to run low in the messes, which added a great deal to our discomfort, and as none could be procured in Cape Ledo, we were forced to tackle the old reliable cracker-hash twice a day. An explanation of this dish may perhaps be of some interest to one who has never had an opportunity of sharing a sailor's nourishment. It consists of hard-tack saturated in fresh water for several hours; it is then taken out and strained, mixed with corn meal (if the cook has it), and put into a pan, adding butter, lard or grease (the latter is more convenient, owing to the scarcity of butter or lard), and baked in the oven, serving with syrup or molasses. It is called "Dandy Funk." Forced to eat this compound twice a day is sufficient to break up an iron frame, much less a human one. Notwithstanding this state of affairs, there was not a murmur of dissatisfaction heard, but "better times are coming" was the pass-word.

To relieve the monotony of every-day life on this isolated spot on the west coast of Africa we would spend the time we had to ourselves in fishing; harpooning sharks that played around the bow, and those with fishing-lines would catch bucketfuls of fine-looking red-snappers in a very short time. Fishing parties were organized, with a volunteer from each mess to assist in drawing the seine. A fifty-fathom shore seine was used. After landing one haul

ashore, the cutter would make a round circle, and in the meantime play out the seine and land the other hauling line further along the shore, then they would haul the seine on the beach, and were always rewarded with rich hauls. After the fish had been inspected by the party, it was distributed among the messes. Our officers organized hunting parties and returned every evening with rabbits and fowl.

On the evening of the 16th of December as the sun was sinking behind the horizon, we gathered in small groups on the deck to enjoy ourselves. The officer of the deck, an ensign major, walked the quarter-deck, looking very solemn—he must have been thinking of the land over there.

The quartermaster on watch walked the bridge with an ostentatious air, as with the binocular he sweeps the cape with a suspicious eye. Suddenly he sights a red star, which is a signal from the camp of "attacked." Like an electric shock the silence was broken with shouts of the savages attacking our men in camp. "Away all boats armed and equipped!" was heard, and immediately all hands were up in arms; confusion reigned for a time, as each man was anxious to get to the shore first. On our arrival ashore, to our surprise, no savages were to be found within ten miles of the camp. The sentinels on post, with an inquisitive smile on their countenances, came down to meet us, and wanted to know if we needed their assistance, etc. Officer in charge of the battalion, Ensign Dougherty, a very good-natured fellow, answered, "We came to your assistance." The sentinel on post had seen a meteor, and thinking it to be a signal from the "Pensacola," and wishing to show that there were no "flies on his eyes," answered the supposed signal with a red star. A more disappointed crew could not very well be found. Order was again given to "Man boats!" and soon we were on board. Four bells struck; all hands were in their hammocks, and soon dreaming about savages.

Now is the busy Christmas closing upon us, and we are anxious to have ship tidy for the holidays. The rigging must be tarred down, which is the best fun of all for a sailor. Aloft I hear "Twinkle, Twinkle, Little Star" sung as follows:

Sprinkle, sprinkle lots of tar,
When aloft at work you are
Up above the deck so high,
Wingless angel near the sky.

When you're riding down a stay,
Rub it well into the lay;
Capsize your pot and view the spray,
Oh, I tell you it is gay!
Smother paint-work near and far,
Sprinkle, sprinkle lots of tar.

Sprinkle, sprinkle lots of tar
If you want the deck to mar.
Rub it well into the backstay,
Let it drip in all the boats,
(Don't forget the officers' coats).
Smother yourself and every spar,
Sprinkle, sprinkle lots of tar.

Sprinkle, sprinkle lots of tar,
You need not be particular.
Chaw tobacco, squirt the juice
Over everything in use.
Yes, my U. S. Naval tar.

Thousands of miles from mamma,
And the road of stern papa,
You learn the wrinkle in a twinkle
How to sprinkle lots of tar.

On the 21st of December the apparatus was in readiness for the eclipse. Professor Todd, in charge of the Eclipse Expedition, had placed Professor Bigelow in charge of the direct photo-heliograph, which was nearly forty feet in length,

and detailed Mr. Davis as his assistant, and Mr. Jacoby was intrusted with the charge of time determination, a longitude and latitude work. Professor Abbe was in charge of the meterological work and of the organization of parties of observers from the ship's company. The mounting and adjustment of the extensive apparatus for the total eclipse Professor Todd reserved for himself. A duplex polar axis eleven feet in length had been constructed of six-inch iron tubing and mounted with great care. This axis was driven by powerful clock-work, of extreme precision, made by Mr. Saegmusber, of Washington. On this single axis was mounted the totality battery, consisting of two Brasher reflecting telescopes of eight inches diameter, four Clark telescopes of three and one half, five, four and one half, and eight inches aperture; the second being rigged with an eye-piece enlarging the true image to a diameter of four and one half inches; the third being used as a high power directing telescope, while the fourth, a photographic dublat with a ten-inch back lens, loaned by the Harvard College Observatory, was arranged for a series of twelve exposures, two of which were made through an orthochromatizing screen provided by Mr. Charbut. All this apparatus was brought into operation during the period of total eclipse, and over three hundred exposures were made in a period of three minutes and ten seconds, but no photographs of the corona were secured, as the sun was completely obscured by clouds.

The moon's shadow sweeps across Angole Saxion in the afternoon of the 22d of December, 1889, causing an eclipse of the sun which will be total about 3 P.M. At all points along the line running north-westerly from Antiges Feilorias, near Cape Ledo, and midway between Muxima and Oeiras, the eclipse will be central and total, and will last three minutes and a few seconds. The phenomena of total eclipse may be seen everywhere within a belt about eighty-four miles broad, half of which lies north, and half

south of the line of central eclipse. As the north and south limits of the eclipse are approached, the duration of the total phase becomes less and less. Thus the phenomena of the total eclipse may best be seen from Muxima, Oeiras, and Coculo; excellently from Conga, Golungo, Alto, Massangano, and Ambaca, and fairly well from Colunguenbo and Dondo, also from Columo; a brief totality may be observed at Antiges Feilorias, longitude 13° 20′, or 53′ 20″ east of Greenwich, and latitude 9° 42′ south of the local mean times of the four contacts, as computed by Mr. Jacoby and verified by Professor Bigelow, are as follows:

1. Beginning of eclipse, 1h. 28m. 55·1s.
2. Beginning of totality, 2h. 56m. 1·4s.
3. End of totality, 2h. 59m. 10·8s.
4. End of eclipse, 4h. 12m. 37·9s.

Position angle is 1 hour, 269° 5′, and of 4. 86° 0′, both reckoned from the north points toward east.

Following is the position of the sun for the beginning of the eclipse, the middle of totality and the end of the eclipse:

Altitude of sun's center azimuth from south toward west:

1,1·4	64·18	54·52
1·2,11	45·23	66·20
1,11	28·10	68·30

At Muxima, longitude 13° 58′, or 55′ 59″ east of Greenwich, latitude 9° 24′ south, the local mean times of the four contacts, as computed by Professor Bigelow, are as follows:

1. Beginning of eclipse, 1h. 34m. 11s.
2. Beginning of totality, 2h. 59m. 34s.
3. End of totality 3h. 2m. 59s.

The position angles at 1. and 4. at Muxima are the same as at Feilorias within a fraction of a degree. Following are the positions of the sun from beginning of the eclipse, the middle of the totality and the end of the eclipse:

Altitude of center azimuth from south toward west:

1.1-2	63-17	55-22
2.3-4	44-17	66-8
	26-50	68-23

The temperature at Loanda varies between 27.4 C., or 84.4 F., as the average maximum of each day for December, 1889. The humidity varies between ninety-one per cent. at 9 A.M. and eighty-nine per cent. at 3 P.M. Evidently, therefore, the climate is not so hot, although rather more humid at midday than the climate to which one is accustomed at Washington in July and August. The above is an extract from an official report by Professor Todd, of Amherst College Observatory.

Sunday morning, the 22d of December, heavy clouds were sweeping over the sun to the disappointment of our scientists, and the hours of eclipse approaching rapidly. Having landed the professor, we prepared for sea. At 11 A.M. anchor was weighed, and we steamed out to sea, and stood in the center of the eclipse track at the time of the totality. On account of the cloudy sky around Cape Ledo the facilities for observing the total eclipse were doubtful. At 1 P.M. the "Pensacola" was a distance of thirty-six miles from land. The clouds dispersed, which gave us a splendid opportunity to view the eclipse through smoked glass, which we all provided ourselves with. About fifteen minutes before the beginning of the eclipse the sun became gradually dismantled of its red color, was covered with a bright golden shade which turned the sky purple around it, and the dark clouds were embroidered with silver from the reflection of the sun's rays. This beautiful panorama was only visible for a few minutes, and as it

vanished from our sight the sun took on a feverish appearance.

At 3 P.M. the corona had begun, but it could not be observed owing to the clouds; the sun had lost its power, the moon having drawn its frigid veil over it and the sky. During the prevailing darkness the barometer fell ten degrees, the sky became a dark blue, and the black clouds beneath changed into purity. The amazing picture produced a silence through the ship. When the sun appeared again it brought joy to us all. It now appeared with a beautiful golden ring on its border, while the center was dark.

At 3:30 P.M. the ship was put about for the shore of Cape Ledo; the sun had then gradually begun to lose its vivid colors, and by 4 P.M. the picture panorama vanished from our sight for another three years, when it will be observed on the coast of Brazil.

The following morning the English expedition left Cape Ledo, and as they steamed out we gave them a parting cheer; our greeting was returned with three hearty cheers from the British tars. And now preparations were made to get out of the wilderness. With a double energy the work was carried on. Christmas-day all work was dropped, and each of us tried to make the day pass as pleasantly as possible. A scientific game of base-ball was played on shore, and was witnessed by a number of savages, upon whom it made a very amusing impression. On the morning of the 27th of December the last stores came aboard, and at 2 P.M. anchor was weighed. In a few hours the wilderness of Cape Ledo was far astern.

THE FALSE ALARM.

'Twas the sixteenth of December
In the year of '89,
We lay in a bay at anchor,
On the coast of Africa drear.

On board was an eclipse party,
Sent by the Department at home,
To take photos, sights, and so forth,
Shoot the sun, hunt, and roam.

Ten days or more we labored
With spade or mallet in our hand,
Laying stones, digging ditches,
And leveling out the land.

Then we put ashore the astronomers,
And built for them their camp;
Also erected with care their glasses,
Of the eclipse to take the stamp.

We had carried out houses
Built of a very curious style,
Made of pasteboard, but easily
Erected in a little while.

At last we had almost finished,
And expected a little rest;
For those astronomers are hard enough
To work with at the best.

They'll make of you a flunky
And work you like a horse,
Also keep you digging ditches
In the sun without remorse.

We all were now quite tired,
Fagged out with all this toil,
Working in this sultry climate
Where the heat your blood will boil.

To make matters harder,
Our landing was a beach,
And 'twas only with labor
We could manage the shore to reach.

At times our boats would be upset
And driven up high and dry;
Our clothes were always dripping,
And to land we had to fly.

Then was placed upon the hill-side,
With their arms, a few marines,
To guard against the natives,
Who dislike Europeans.

Of these quite a number
Came daily to the camp,
All armed with curious weapons,
On their faces a villainous stamp.

They would sell us beads and trinkets,
Or beg a scanty meal,
And any little trifle,
They would try real hard to steal.

Now the marines had orders
To keep a bright lookout,
And to fire at the natives
If they caught them prowling 'bout;

And had also various signals
In case of danger at night,
Which were to fire a rifle shot
And send up a red light.

But there was no fear of peril,
And all went well enough;
The natives seemed quite friendly,
And not inclined to be rough,

'Till we missed one poor fellow,
And to find him were not able,
So for want of better judgment,
Concluded he'd gone to the devil,

A notably wicked person,
With whom he'd rather not go;
And even with its hardships
Prefer the old "Pensaco'."

Some swore they'd seen a native
Togged out with his white trousers;
And another with his neckerchief,
Lurking around the houses.

Well, this made us watchful,
And some became uneasy,
For the natives are treacherous,
Though at times very lazy.

The night was clear, bright the stars,
All hands at ease reclined,
When suddenly across the sky
Flashed a meteor of curious kind.

The quartermaster on the bridge
Fancied he had seen a signal,
And promptly answered a green star,
As a shot with his did mingle.

Then followed a scene of confusion
That can hardly be described:
Two whale-boats soon are called away,
With arms the crews supplied.

Quicker with dread our hearts did beat;
Each man rushed to a boat,
Thinking the marines had been attacked
We tried hard to get them afloat.

With shouts and cries the air is filled,
None wish on board to stay;
They fill the boats even without arms,
But all eager for the prey.

Then when the excitement was at its height,
We heard the stirring notes
From the bright shrill sounding out,
"Arm and away all boats."

Some there were who had no arms,
Others no ammunition;
Still they sprung in every boat,
Bound on their warlike mission.

But they met with a mishap
As they lowered the second cutter,
For she struck upon a stanchion,
Which very badly hurt her.

One hardly knows what place to go
'Mid such a general smother;
Orders and commands flying about,
Men shoving along each other.

At last we managed to get away
And bent right to our oars;
Every man with his rifle
Laid on his knees across.

Some of the boys were loading
Their rifles in our cutter;
And if this had not been stopped
Would have shot one another.

"Pull, boys! pull!" was the general cry;
We had never rowed like that;
Soon we approached the sandy beach,
Which slopes here quick and flat.

Now our hearts with excitement leap;
We wait only the word,
When suddenly across the surf
"Boat ahoy!" we heard.

"There's one of them left at all events,"
One old sailor said;
"Can't be much the matter,
There's one of them not dead."

"Halloo!" was answered to their cry
As on our oars we lay;
"What's the trouble with you?"
Was all they had to say.

Like cold water poured on a flame,
Our martial spirit expired;
We saw it was a "False Alarm,"
And it made us sick and tired.

Slowly and sadly we then pulled back,
Tired, wearied and disgusted;
How we kicked, and how we laughed,
As aboard the ship we mustered.

Well, boys, it was pretty hard,
To be fooled around like that;
Our captain told that quartermaster
To put a feather in his hat.

On the morning of the 28th, at 7 A.M., we were once more anchored in the harbor of St. Paul de Loanda. On our arrival the city was in holiday attire, owing to the crowning of their new king, Auguste Fernando, who was to rule on the throne of Portugal. The ships in harbor were gayly decorated.

The old year of 1889 has left us with both pleasant and sorrowful reminiscences, and the new year has come with an offer of a white gown in the place of our soiled one to all of us who wish to accept it. New-Year's-day of 1890 is well branded in the minds of those that were obliged to participate in the day's events. At the break of day the reveille was sounded and dispelled the dreams of one and all.

"Rouse out; show a purser's sock!" was heard, in a pleasant voice, by the gun-deck corporal, and a "Happy New Year!" was exchanged between all.

At 5:30 A.M. all hands turned to, and "scrub and wash clothes" was ordered, which was carried out. The decks were scrubbed and washed, the bright work received an extra polish, and aloft went the square-yardmen to mend the sail, and when eight bells struck we had finished our New-Year morning's routine. We then assembled at the breakfast-table, where many a pleasant recollection of times past was brought to memory. At 9:15 all hands turned to, and when the boatswain's whistle was heard through the ship calling, "A-a-ll—h-a-a-nds loose sail to a bowline!" it was but a few minutes before the white canvas was seen fluttering in the breeze.

Preparation was now made to receive three hundred and eighty tons of coal. By 10 A.M. the work had earnestly begun. On shore New-Year's-day was commemorated with flags flying from all the principal buildings. At noon a New-Year's salute of twenty-five guns was fired from the fort. Friday, January 3d, in the afternoon, a race was decided between our racing gig and the whale-boat. It was for a small purse of forty dollars—a very tame affair, as the whale-boat had never been in a race. The course was about three miles straight away—the finshing point opposite our bow. The time was taken by the referee: the gig 33:29; the whale-boat 34:12.

St. Paul de Loanda is a considerable seaport town on the south coast of Africa. It is also the principal Portuguese settlement in Lower Guinea. The city stands at the mouth of the River Bengal, in latitude 8° 54′ south. It is the largest and most important European settlement on the coast, and contains twelve thousand inhabitants, of whom eight hundred and thirty are white, two thousand mixed, and nine thousand black. The principal business men are exiles from Portugal, men having committed

murder, robbery, etc., living here in luxury. The climate is comparatively healthy near the coast, but very sickly in the interior. The harbor is attractive, and protected by three large forts; the larger one is situated on a hill-side inside the city; the other two are located at the entrance of the harbor, and afford the city a strong protection. St. Paul de Loanda is located on a hill-side. The streets are unpaved, but are kept very clean by convicts; the houses are good, all the government buildings and churches are substantial, and the city, viewed from the harbor, has a very attractive appearance. All kinds of provisions can be procured; also bullocks and goats are obtainable in the markets. Prices are very high. Ivory and beeswax are the principal exports.

On January 5th the expedition, which left us at St. Paul de Loanda, returned to the ship, the naturalists having gathered a good harvest in the interior, and Professor Preston was well pleased with his observations in Loanda.

The following is an extract from the diary of the naturalist, W. S. Brown, and his brother, A. H. Brown:

"We took leave of the ship December 7th, 1889, our plan being to remain in Loanda for a week, then to proceed into the interior for a few hundred miles and remain there until the Eclipse party returned from Cape Ledo. By the kindly aid of the American consul and the governor, we found ample accommodations for our outfit, which consisted of tanks containing alcohol, used for preserving specimens, guns, ammunition, provisions, tents, and nearly everything that is needed to make camp life endurable. We pitched our tents near the American Museum and remained there for a week. We made a splendid collection of fish, birds, insects and reptiles. On the morning of December 14th, all hands were up at four o'clock packing and getting ready to go into the interior. Our luggage was loaded on large ox-carts, and taken down to the railroad station, where we found a car ready and waiting for

us. The car was very small and the track narrow—much different from those in America. At 7:30 A.M. we were on our way, accompanied by Mr. Chatelain, our interpreter, and Mr. Orr, of the Clark University—an anthropologist by profession. Our train being a special one, and also a very slow one, we had things to suit ourselves, and also a good chance of getting a glimpse of the country we passed through. For some miles the country was very level, with here and there a large cajou-tree and immense patches of manyoka. We soon passed into more fertile country, where on each side of the track was a rank growth of grass, which lined the whole distance to the end of the route. Our next stop was at a place called Quefandango, on the Bengo River. Here we found the natives in a high degree of excitement, for they had just caught a crocodile, and had him tied up to a tree. We all left the car and went over to have a look at it, and also tried to buy it of them, but they wanted too much for him, so we went back to the car and proceeded on our journey. We arrived at the end of the route just about dusk. It is merely a station where a few men had a few tents pitched in as dry a spot as they could find. There were now about five miles of road which the engine could not pass over on account of the damage done by the recent washout. We had to sleep that night as best we could, so all hands went to work and pitched our tents. That done, the next thing was to find water. After a diligent search we found some in one of the numerous mud-holes. It was not very good, but it passed after having been made into coffee. After supper we began making arrangements for the night, and as we had no idea of what kind of a place we were in, we thought it best to keep a guard on our stores while we slept. The mosquitoes were a terrible torment, and we slept very little. The next morning our things were loaded on a push-car and taken across the track. We then transported them as far as a trading station on the Quanza River. It was dark

again before we arrived at our destination, and being very tired, we did not go to the trouble of pitching our tents, but piled our traps together, spread a piece of canvas over them, and tried to make a night of it. It rained during the night, which made things very uncomfortable for us. The morning offered us a good opportunity for drying our things, which we did. A Portuguese traveler offered us the use of a large house, which we accepted with thanks and occupied during our stay. Our first trip was up the Quanza River. This river separates two tribes of natives; one tribe being the Bendos, the other the Kosamas. The former are controlled by the Portuguese, and the latter by their own chiefs, and are in an entirely uncivilized state. The river is alive with crocodiles, and a few years ago contained plenty of hippopotami, but since the steamer which makes weekly trips began plying up and down, they can only be found in lagoons on either side of the river. We made several interestisg hunting expeditions and succeeded in killing plenty of antelope. Our guns were not suited for killing large game, but we wounded if we did not kill. We had a hard job getting the natives to do any work for us, for as soon as they had a day's pay due them they would clear out. December 22d was very cloudy here, and it was well the Eclipse party located where they did. On January 1st we received word that the ship had returned to Loanda, and also for us to proceed on board, which we did without delay. We were in the ship but a few days before the fever broke out among our party—two cases being very bad. As we got into a cooler climate, however, all traces of the fever left us."

My idea in giving this extract from the diary of Mr. Brown is to give the reader some idea of the work of the naturalist.

We will now proceed to Cape Town. By 3 P.M. the "Pensacola" headed south-south-east, running along the coast to avoid, if possible, the strong south-east trade-wind,

The mainland had an arid and mountainous appearance, with scarcely any vegetation, except at the bottom of the ravines. On our run along the coast we passed several villages, among them St. Mark, to which we took a great fancy. This little village had all the appearance of home comfort; it was surrounded by two high mountains, and cocoanut and banana-trees enveloped the huts. In the afternoon a south-east wind began to blow, and light yards with top-gallant mast was sent down. The cold weather was now setting in. The following morning all hands were ordered to shift into their blue clothes, and the white summer attire was laid aside. As the wind was increasing and the ship labored heavily against wind and sea, all hands were called to "down topsail yards!" In fifteen minutes from the time given, the topsail yards were down on deck, placed in the starboard gangway, and there secured for sea. On the 15th of February, in latitude 29° 25′ 51″ south, longitude 16° 26′ 7″ east, we sighted an English bark under full sail steering north by west, having the trade-wind in her favor, which we were trying to fight against.

On the 17th the wind had decreased in force. The "Pensacola" was now only fifty miles off Cape Town, and everybody seemed to be very busy. Men were aloft hauling the running gear; on deck they were scraping and cleaning, and our ambitious marines were also unusually busy, spending more time than usual by their toilet-boxes.

At 10 A.M. all hands were called to cross topsail yards. Each yard is sent up separately—mizzen-topsail yard first, then the main and fore-topsail yards.

At 3:30 P.M. we were called to cross the top-gallant mast and top-gallant yard; this piece of seamanship took ten minutes.

At 7:30 P.M. the "Pensacola" let go her anchor in Table Bay, off Cape Town. On the 18th, the following morning, at 8 A.M., national salutes were interchanged.

Preparation was made to receive President Reitz, from the Orange Free State. At 10:30 the barge was sent ashore to receive him and his party. All hands had shifted into blue dress and white hats; the officers were in full dress and assembled on the starboard side of the quarter-deck. At 11 A.M. the president, accompanied by his wife and sister, made their appearance. He was received with honor. While they marched to the cabin, the band played the national air, and the marines in full dress presented arms. As the president and his party took their departure in the barge a national salute of twenty-one guns were fired after him. During the afternoon we were engaged in mooring the "Pensacola" alongside the dock, with stern on, then placed a gangway from the ship's stern to the dock for the accommodation of visitors and the crew.

On the 17th of January we received a very large mail from home.

"Mail-ho—mail-ho!" shouted James Legs, as he was distributing the mail.

Each would stop for a moment and view the handwriting, and with a smile would say, "From mother," "From sister," "From my sweetheart," etc.; others again looked disappointed and down-hearted. Only those who have been absent from home a great distance, and for a long time, can imagine what a sense of pleasure it gives one to receive these most welcome letters. We read the very advertisements of the newspapers. Nothing takes us so entirely to our homes and makes us feel so happy as a newspaper. The very name "World," Brooklyn "Eagle," "Herald," sounds as welcome as the cry "Land-ho!"

On the 21st of January the first liberty was granted since we left New York, and thirty-eight hours were granted to every sailor on board the "Pensacola." It was greatly appreciated by the majority, who had a splendid time. During our stay at Cape Town we did not have much drill of any sort, owing to the general liberty and the hot sun.

On the morning of the 28th of January the Russian man-of-war "Dzhiget"—one thousand four hundred and sixty tons, carrying eight breech-loading guns—came to anchor in Table Bay. After the ship had received a thorough cleaning, she came into the breakwater, and moored alongside the "Pensacola." The following day a visiting party visited the "Dzhiget." As soon as we reached her gangway, the crew were called aft to receive and entertain us. Although we did not understand them, we had a very enjoyable time, for both officers and men showed a great friendliness toward us. Having been guided through the ship by the officers, who could speak the English language, we returned to the spar-deck, where was spread a fine lunch; for desert the Russian liquor called "watke" was served, and ample justice done it. At their request we sung "The Ship That Never Returned" and "Rock the Baby to Sleep." They returned the compliment by singing several Russian songs. In the midst of our fun we were ordered to return to the "Pensacola," and had to part from our friends, hoping some day to meet them again.

To-day being the first Sunday of the month, naval routine calls for a general muster. Rules for better government are read by the executive officer. As each petty officer's name is called he answers his respective rate, such as "Master-at-arms, sir;" "chief boatswain's mate, sir;" "captain of top, sir." Next come the men who hold inferior rate; they step forward and pass around a capstan in front of the captain and answer their rate, such as: "Seaman apprentice, first class, sir;" "ordinary seaman, sir;" "Landsman, sir;" "first-class fireman, sir;" "steward, sir;" "ward-room cook, sir," etc. In this way every man in the ship has to pass an inspection by the commanding officer, unless he is sick or on watch, when he is excused. After all have been mustered, the paymaster, touching his hat to the executiver officer, says:

"The ship's company have been mustered," who repeats the same to the captain, and the captain requests the executive officer to pipe down. He informs the officer of the deck, who politely requests the boatswain to pipe down, which he does with the assistance of his mates, and thus ends our general muster for that month.

After muster the captain made a short speech before the crew:

"My men, I am greatly pleased with your good behavior on shore while being at liberty. It encourages me very much to grant you all the liberty that I possibly can. To Quartermaster H. A. Eilers I wish to express my gratitude for his courage in saving W. Shoemaker, a fellow-ship-mate's life. It is probably no more than any of you would do in similar circumstances; but Eilers had a chance to show his courage and his duty in a trying moment, which he did at the peril of his own life. I take especial pleasure, therefore, in recording an act of gallantry by H. A. Eilers at 2 P.M., on the night of the 23d of January, 1890, while the U. S. S. 'Pensacola' lay moored in the breakwater off Cape Town, and a fierce east wind was blowing across the bay. Eilers was on the midnight watch, when the sentinel hailed 'Who comes there?' 'Liberty-man, quartermaster.' Eilers then went to the gangway to see him on board and got there just at the moment to see him fall overboard. 'Man overboard!' shouted the quartermaster, at the same time seizing a rope and jumping into the water. He swam toward him, tied the rope around the man's waist, and they were both pulled safely on board."

On Sundays the ship was crowded with all sorts white, black, and mulatto visitors. I have seen almost every class of people on this globe and their different customs, but never yet saw a people who fancy so many vivid colors in their dress as these Malay women. The women's dress consists of a very gay waist and a skirt with a long trail,

and a bonnet tied closely around the head. The waist is made from either green, yellow, blue, or red material—generally silk. The skirt from the same material, but of different color; if the waist is made from green silk, the skirt is red. Over this gay dress they wear a shawl and ribbons that differ from the dress. They are well-built people, of medium height, and with pleasing features.

The Cape of Good Hope is popularly regarded as the most southerly promontory of Africa, though it is half a degree to the north of Cape Agulhas. The latter is merely a projection on a coast line which diverges considerably from a parallel, but the former is really the turning-point from south to east on the voyage from Europe to India. This celebrated promontory is in latitude 34° 22′ south, and longitude 18° 29′ east, being the termination of Table Mountain, which, as it proceeds toward the bay of its own name—Table Bay of Cape Town—rises to the height of one thousand feet about the sea to that of three thousand five hundred and eighty-two feet at Cape Town. The Cape—for so it is called—was discovered and doubled by Diaz, a Portuguese navigator, as early as 1486, six years before Columbus, in aiming at the same goal by a different route, led the way to America. But it was only in 1497 that Vasco da Gama realized the value of Diaz's discovery by rounding it on his adventurous voyage from Lisbon to Calcutta.

The Cape of Good Hope, a British colony, was so called from the cape on its south-western extremity. It was established by the Dutch in 1652—some attempts at settlement having been previously made by the Portuguese. The former only intended it at first as an intermediate station between Holland and their East Indian possessions, and at first occupied only a small tract of ground on the slope of Table Mountain, with some portion of the adjoining flats; but they had in their neighborhood a good scattering of natives, feeble of purpose, and incapable of organization on a

large scale. The tide of immigration set in from Holland, and when the country was finally taken possession of by the British in 1806—there having been a brief occupation of it from 1796 till 1803—the Dutch had extended their dominion as far to the east and north of the great Fish River and from that point in a waving line across the country to the west.

On entering upon the government of this large territory the English found themselves face to face with a race totally different from that of the purposeless Hottentots—a people styled Kaffers, mainly of Arabic descent, consisting of tall, athletic, finely formed men of warlike disposition, with an incurable propensity to steal from any one, provided he was not of their own tribe, and particularly so if he were a foreigner. The inevitable result was a succession of wars, those namely of 1812, 1819, 1829, 1835, 1836, 1846, 1847, 1851 and 1852. The consequence was that the Kaffers were driven back, and at present the colony on its north-east corner has reached as far as the mouth of the River Kei.

The highest range of mountains within the colony is nine thousand feet above the sea. These mountains, at a distance from the coast-line of about one hundred miles, receive different names in their course, such as "Stounburg," "Mienwveld," etc. South Africa, being not far from the region of the trades, south-east winds prevail, especially in the summer-time; the only other wind that may be said to blow is that from north-west, which prevails during the colder months. But whichever of these two winds predominate, the one brings a supply of rain from the Indian Ocean, the other, less frequent and more richly laden, from a part of the Atlantic nearest the line. Thus the country is fertilized, and hence the curious fact of the transposition of seasons in the same latitude. As the harvests in such latitudes depend more on the supply of rain than anything else, people are reaping on one side of

the country while they are sowing and planting on the other.

There is in the colony almost a total want of navigable rivers, and railways have only been commenced. Already the copper mines are connected with Port Nolloth; the line which connects Cape Town with Wellington has been carried forward to Worcester. When completed it will be a trunk line, extending from one end of the colony to the other. Another line has been begun at Port Elizabeth, in order that it may pierce the gaps in the mountain region and open up the way to the country behind them. This splendid country is at present occupied by an assemblage of varied races. The Portuguese were the first Europeans who landed here. The Dutch are probably still the most numerous. Next in number to the Dutch are the English, by whom some parts of the country, particularly in the east, are occupied almost exclusively. Of other Europeans, the French are also largely represented, many refugees having settled in it subsequent to the Revocation of the Edict of Nantes. They were at first located principally in the west, where they introduced the culture of the vine; but their names are now found in almost every part of the land.

Cape Town is the capital of the colony, and also the seat of government. It stands on the western shore of Table Bay. Between it and the foot of Table Mountain a great many diamonds have been discovered. Immense numbers of people have flocked here from all parts of the world in search of them, and this alone had much to do toward the building up of the colony.

Table Bay is an indentation on the northern side of the cape peninsula. It is four miles wide across its entrance, between Whale Rock and Green Point, and is sufficiently large to accommodate the largest fleet of vessels afloat. It derives its name from Table Mountain, a remarkable mass of sandstone rising to an elevation of three thousand five

hundred and fifty feet at the south part of the bay, immediately over Cape Town. The mountain, which rests on a granite base, five hundred and fifty feet above the sea, is level on top, and falls nearly perpendicular until it joins the Devil's Peak, which is a ragged, peaked mountain three thousand two hundred and seventy feet high, and is separated from the former by a gap. The west end of Table Mountain is also nearly perpendicular from its summit to a considerable distance, and is then united by an abrupt declivity with the base of a conical-shaped mountain called the Lion Head. It is two thousand one hundred and eighty feet high, and is in some places so steep that it can only be ascended by steps cut in the rock.

From the north side of Lion Head a rounded ridge extends toward the N.E. where it reaches an elevation of one thousand one hundred and fifty feet, and is known as Lion's Rump, upon which is a signal station. The two latter overlook the western shores of the bay.

About midway between Mouille Point and Amsterdam Battery, on the north side of Cape Town, is a breakwater which extends in a north-easterly direction, six hundred and seventeen yards from the high-water level. At the inner end of the breakwater on the south side is the outer basin, eight hundred and fifty feet long by two hundred and eighty feet broad, with an entrance two hundred feet wide. The inner basin lies to the southward of the outer basin and is one thousand feet long, and four hundred and fifty feet broad.

The basins are connected by a railway with Cape Town. There is a patent slip at the south end of the inner basin, and it is capable of taking a vessel of one thousand five hundred tons on it.

Extensive warehouses, and sheds with cranes, etc., are erected around the docks, and a large smithy and factory are available for the repairs of all kinds of engines. These comprise some of the most remarkable structures along

with the Castle with its outworks and bastions, the barracks for the militia, and the Roman Catholic cathedral, which I visited while at liberty, and found it to be a very ancient structure, but yet very pretty. On entering the church the first thing I noticed was the lofty ceiling with its paintings of Christ and His twelve apostles. Over the main entrance door was a small organ. Looking down on the clean wooden floor I noticed three marble slabs with a cross on each corner, also some writing which I made out as follows: "*Abi est Mois Victoria lua.*" Under these slabs lie the remains of the first Roman Catholic bishop of South Africa, the Rt. Rev. Patrick Raymond Griffith, born October 15, 1798, was consecrated August 24, 1837; died the 18th day of June, 1868.

All churches are well represented here, the Episcopal being the national religion. There are also representatives of the Presbyterian, Lutheran, Wesleyan, Congregationalists, Jewish, and Mohammedan. I visited the museum and library; the botanical gardens in front of these buildings are beautiful. Here it is we have the statue of Sir George Ray, who was governor of Cape Town from 1854 to 1861; and between it is Governor's Park, shaded on each side of the park avenues by stately oaks.

Out of town a little distance is Somerset Hospital and the Royal Observatory. The climate here is very healthy; the temperature in summer averaging about 76° 6′ Fahrenheit, and in winter 58° 3′ Fahrenheit.

Two lines of passenger wagons connect Cape Town with the diamond fields, and the round trip is made in about two weeks. A railway with Wellington and electric telegraphs connects the principal parts of the colony. Cape Town is the principal port in South Africa for the coast, as well as for foreign trade. All kinds of vegetables, fruits, and mostly anything our home market affords can be bought here. It has a supply of fresh water of excellent quality, which is the fountain of life in Africa.

The municipality is administered by a town council of eighteen members—three from each district, there being six districts—and is presided over by a mayor who is elected annually.

Having visited all the principal places of interest, and having gained considerable information concerning them, I returned to the Cambrian Hotel, where I was stopping, my intention being to visit Table Mountain on the following morning.

I left the hotel about six o'clock with a shipmate of mine with the intention of going to the top of the mountain, but to our disappointment were not able to accomplish it, as the clouds were setting over it too heavily. So we followed the base of the mountain around until we came to the foot of Devil's Peak, which is about eighteen miles from Cape Town. We passed several old dilapidated forts and guns, which had been built by the Dutch in 1700, when they were possessors of Cape Town. How they got the guns up this mountain, and their idea in building the forts so far from the beach was a puzzle to us, as we had a fairly good idea the guns would not carry over one thousand yards at the most, so they would not do for harbor defense. But we learned later on that they were used against the hostile natives. Fully content with the beautiful scenery, we proceeded along the foot of Devil's Peak. Here we had a splendid view of Wyanburg. This pretty little village is a summer resort for the people of Cape Town, and is also noted for its fine fruits. We also came across a water-fall whose crystal water was descending from an altitude of about three thousand feet, down the side of Devil's Peak into the village. It is called by the natives the Devil's Spring.

Feeling happy and contented with what we saw, we started back on our home journey, in the meantime collecting quite a number of silver leaves for our friends at home. After a long and tedious journey we reached the ship.

On the 3d of February our officers gave a farewell ball to a select few of the citizens, the quarter-deck and half-deck being decorated with a fine display of bunting. It was a great success from an artistic point of view. The greater part of the guests being from the military circle, there was no lack of fun. Our band furnished music for the occasion, and during the afternoon we witnessed some splendid dancing. The blue jackets had their share of dancing among themselves, and enjoyed it immensely. But the one fault was that they did not have wine to quench their thirst or lady partners to waste their smiles upon.

It was now about time to take our departure. The coal bunkers being full, and the paymaster having received all his necessary sea stores, February the 6th was the day designated for our sailing, and in due course it arrived. On the morning of the 6th at 7 A.M. all hands were called to unmoor ship; in about half an hour we were under way, and steamed out to an anchorage in the bay preparatory to sailing in the afternoon.

Word was now passed to the effect that the mail for the United States would leave the ship at two o'clock. The morning watch was passed in getting the ship ready for sea, sending up top-gallant masts, top-gallant and royal yards, bending the gear, etc. Our second cutter went ashore for the last time with the mail, and when she returned all hands were called to quarters to find out if anybody was absent. E. Goswin, a private, and R. J. Parton, a coal passer, were absent.

At about two o'clock in the afternoon all hands were called to "up anchor," and in about fifteen minutes the anchor was aweigh, and we were steaming out of the harbor bound for St. Helena, where the world's Hercules and the Flower of France had faded away.

On the following day—the 7th of February—a splendid south-east wind came booming along, which gave us a fine

opportunity to spread our "white wings." All hands were on deck and ready to fly to their station at a moment's notice. In the meantime orders had been sent to the engineer on watch to "haul fires and uncouple the propeller." The officer of the deck was relieved by the executive officer, who took charge during the evolution. "Captains of tops and top-keepers in the tops!" A lapse of one minute allowed for a breathing spell, then comes the order: "Top-gal't and royal yardmen in the tops!" "Topmen and lower yardmen on the sheer-pole!" "Fore-top there!" "Sir?" "Lay down in the top; there has been no order to lay aloft yet." "Ay, ay, sir." "Aloft, topmen." "Aloft, lower yardmen." At this order the top-gallant and royal yardmen lay aloft to their respective yards. "Now keep into the slings of the yards until the order to lay out." "Fore-yard, there." "Sir?" "Keep in the slings, keep in there. Do you hear me?" "Ay, ay, sir." "Lay out and loose." "All ready the fore, sir." "All ready the main, sir." "All ready the mizzen, sir," shouts out the officer in charge. "Stand by." "Now keep that sail up on the topsail yard there in the main until the order is given to let fall." "Let fall." "Lay down from aloft." "Sheet home and hoist away the topsail." At this order a few hands go to the sheets, the rest to the halyards. As soon as they are sheeted home and mast-headed, the order is given to "man the top-gallant sheets and halyards." "All ready, sir!" comes the word from the fore and main. To Ensign Rohrbacher, who is in charge of the mizzen, and who has probably forgotten to report his mast, which is hardly ever behind, "I am waiting to hear from you, sir." "All ready the mizzen." "Sheet home and hoist away." The same with the royals in their turn.

Now all plain sail is made; the order is given to lay aft to the braces, as follows: "The weather-head and main, and lee cross-jack-braces." "Forecastle, there." "Sir?"

"Brace the fore-yards by the main, sir." "That's well; the lee main-topsail-brace." "Weather-main-brace a small pull." "Well; the cross-jack-braces." "That's well." "Haul taut the weather-jack-braces." "Messenger-boy!" "Sir?" "Tell the boatswain to pipe down and set the watches." "Ay, ay, sir;" which he does. This evolution was executed in fifteen minutes from the time the order was given to lay aloft, all sail being set and the ship on the port tack.

The deck is now turned over to the officer on watch, and all orders the captain may have given, and what sail is on the ship is also turned over to him. We were now gliding through the water at a fair rate of speed, steering north 45° west by the standard compass. Drill is the main thing on these long voyages, and learning the science of naval art. On the night of the 7th my watch was on deck from eight bells until midnight. The ship was making about three knots under plain sail.

The watch below was sleeping in their hammocks, enjoying it no doubt, until about 11:45 P.M., when the fire-bell rang which roused them out double quick. It was quite amusing to see them staggering on deck, half awake, with their hammocks on their shoulders, some running along the deck with swabs, some with buckets, fire hose, and hammocks ready to smother the supposed fire.

The watch on deck were all ready at their stations. "Water third division, sir." The first and second follow in quick succession. The executive officer takes the time of each division as it reports, and makes a note of it. He also reports it to the captain, who in turn makes an official report of it in Washington.

The weather thus far has been very favorable; but the wind is losing its velocity. On Monday it died out to almost a calm, and the old ship was rolling rather uneasily. On this particular day the drill was "general quarters." "Man the port batteries," comes the order from the

executive officer, the pivot guns and crew doing their level best to be pivoted first. The men stationed at the shifting tackles have to be very cautious and see that the tackles are hooked and attended to in proper shape. A tackle is used on a pivot gun for checking when the gun is to be pivoted to port or starboard. This day there was something wrong with the shifting tackle on the pivot gun in the fourth division. When they were shifting it from starboard to port, the ship gave a lurch to port about seven degrees, and before they could check the gun, James J. Gallagher, one of the gun's crew, had both his legs crushed below the knee. When our exerise was over I went down into the sick-bay to hold a short conversation with him. Dr. Hessler, who is said to be the best surgeon in the navy, had already dressed both his legs. On the 18th we had small-arm target practice with pistols, the range being about thirty yards on an iron frame, which was in the shape of a man and covered with canvas. There were many fine scores made during the exercise, but E. Bishop, one of our first-class apprentices, made some crack shots, and a score of twenty-five out of a possible thirty, this being the best average made during the exercise.

On the 19th we had large gun target practice on a naval regulation target at a range of fifteen hundred yards. In this exercise, captains of guns only being allowed to fire, it is rather difficult to judge which man is the best marksman out of three hundred and fifty men. Among our eighteen gun captains that fired, S. McMullen, of the second division, and F. Hendrick and R. C. Morris, of the third division, made the best scores. The weather was fine and clear, no clouds upon the horizon to intimate the wind. Professor Abbe, meteorologist, belonging to the scientific expedition, was at his old station looking toward heaven, and twisting his instrument and occasionally taking the temperature of the water. They all seem to be tired, from the captain down, over the slow progress we were making

through the water. At 3 P.M. the captain gave orders to have steam in all the boilers. By 5:25 we steamed ahead. There was now an expression of satisfaction on the boys' faces when they looked over the side and saw her glide through the water.

Early in the morning on the 21st of February we heard a loud cry of:

"Land ho!"

"Where away?" shouted Ensign Mayer, officer of the deck.

"Two points off our port bow, sir."

"High land?"

"High land, sir; ay, ay, sir."

"Orderly!"

"Sir?"

"Report to captain high land is sighted two points off our port bow."

"Ay, ay, sir."

The captain and navigator now put in an appearance on the forward bridge, and took charge until the ship came to anchor. When a voyager first comes in sight of this huge, pyramid-shaped cliff, which rises out from the sea, presenting no sign of vegetation, it reminds him of Napoleon's exile and death, and produces a feeling of desolation such as is attached to a cemetery, the thought of dead hopes and what might have been. It was not long before we heard the boatswain's whistle through the ship calling all hands "Bring ship to anchor." At 7:55 we dropped our anchor in Jamestown Harbor in St. Helena. At 8 A.M. a national salute of twenty-one guns was fired with the English ensign on the fore. Our compliment was immediately returned, gun for gun, from the fort on Ladder Hill. To-day being the annivesary of General Washington's birthday, the ship was dressed with flags from sunrise to sunset, and at noon we fired a national salute of twenty-one

guns, which was joined in, as is customary, from Ladder Hill, and the different consular flags were hoisted in the little town. The day was observed very quietly on board; no drill during the whole day; all bags were piped on deck, and smoking lamps lighted, and all the dinner-tables were decorated with flowers, and the company was served with plum puddings, cakes, pies, etc.

On the 25th of February, the royal mail steamer "Anglian," Commander Jones, from England *via* Natal, and Cape ports, came to anchor in Jamestown Harbor at 10:30 P.M., bringing our mail and three exiles—Zulu chiefs—four Zulu male attendants, and four Zulu female attendants; Mr. Daniel, interpreter, and Mr. Saunders in charge of the party. On the 26th they were landed by the steamer. At their landing on the wharf three close carriages were awaiting them to convey the party to their designated cottage situated on High Hill, on the western part of the island. The first carriage was occupied by his Zulu highness, Prince Diuizulu, accompanied by his two uncles, Undabuka and Tshingana. In the second carriage came their wives. In the third came their attendants and two unmarried ladies who had accepted the protection of Prince Diuizulu during his sojourn at St. Helena. Prince Diuizulu expressed himself delighted with his journey to a reporter of the St. Helena "Guardian," although he intimated that he looked forward to the prospect of going to Prince Lodg's cottage, situated in the beautiful village of Longwood, close to Napoleon's old homestead; nevertheless he thought Rosemary Hall on the high land would sound well, and arrangements were made immediately to engage the services of the local photographer to enable him to order from his stationers stamped paper with the views of the island. On their arrival at Rosemary Hall, their future residence, dinner was served. The prince dined at his own table alone; the two chiefs Undabuka and Tshingana were served separately, and distinction was only drawn between

the attendants and the women, the difference in rank and position being strictly observed.

These great Zulu chiefs had been banished from Zululand for a term of seven years owing to their continuous hostility against the English emigrants who were sent out by the English government to settle on the Zulus' fertile land. These chiefs do their utmost to keep the English emigrants out of their country by constantly warring against them. In this way they have succeeded in keeping them off until lately, when they were captured by English authority in Cape Town, and sentenced for a term of seven years as prisoners of war. Prince Diuizulu is a very smart and intelligent-looking young man of about twenty years of age; his two uncles, Undabuka and Tshingana, have seen their best days, although both yet possess the Kaffer features.

Zulu, or Amazulu, is the name of that portion of the Kaffer race who inhabit Natal and the region north-east of it, until they gradually merge into the common negro of the east coast north of the Zambesi. Kaffers are more refined in features. The mouth protrudes less, the lips are less thick, and the nose more like that of the European, although the distinguishing type of woolly hair still continues. The Zulu Kaffer is a far more amiable savage than his brother the Amakosa of the Cape frontier districts. He is less warlike, more industrious, and far more willing to act in the capacity of a farm laborer or domestic servant. In language, customs, habits, etc., although certain local differences occur, they are in common with other nations, as Zulu Kaffers have no difficulty in understanding British Kaffers, and their views of a future state are very similar. The Zulu is by nature social, good-hearted, and cheerful. His passions, however, are strong, and called out most prominently when in a state of war. He is comparatively chaste Crimes which stain Europeans are unknown to him. He is hospitable and honest, yet greedy.

He is kind to his family, yet cruel to dumb animals and whatever may be under him in time of war, when he is converted into a demon. He is proud, and can be easily distinguished between an English gentleman and the tribe with which too many of English colonies are afflicted. His reasoning powers are good, and with an education a Zulu rationalist might be found.

It was from the Zulu country, however, that the tyrants came who so long devastated South-eastern Africa. The chiefs Chaka, Dingaan, and Moselikalze trained their subjects to a peculiar mode of warfare, spread desolation and havoc for many years among the Betjuana and other tribes of the interior until eventually these mighty chiefs, with their thousands of followers fighting like Homer's heroes hand to hand, armed with stabbing assagais and shields of ox hide—the color of which distinguished the different regiments—melted away, their power broken into comparative insignificance before the terrible rifles of a few hundred emigrants—Dutch Boers—who in their turn gave way to the energetic action of the British authorities. The Zulus, although they very often have serious wars among themselves, yet live on very friendly terms with the colonists, among whom a considerable number of refugees from the country east of the Umlugela dwell in peace and safety, and are in many cases fast acquiring a comparative independence. A number of missionaries of Wesleyan, American, Swedish, and Episcopal churches labor among the tribes. A great deal of interest has lately been felt in regard to Bishop Colenso's peculiar views for the evangelization of the heathen; and the Zulus are becoming almost as famous as Macaulay's New Zealander.

That country lying north-east of the colony of Natal, between its west boundary, the Umlugela and Umzingyali rivers, latitude 29° 10′ east, and Delagoa Bay in latitude 29° south, longitude 32° 40′ east is generally known under the name of Zululand or Zulu country, which is inhabited by

independent tribes of Zulu Kaffers; those living in the immediate vicinity of the Natal colony being subjects of the paramount chief Umpanda and his son Ketchwayo, the successor of the tyrants Chaka and Dingaan. The principal tribes of Africa are all from the Zulu race, such as Amazulu, Amahute, Amarwazi, and Amajenga tribes.

Balls and receptions are the main pastime of our officers. A grand reception was given by the members of the Tennis Club at the club grounds to the captain and officers, and a large assemblage of ladies and gentlemen were present to witness a game which was to be played between the officers and the Tennis Club. The agility of the American officers quite astonished the club, and made it very interesting. The crew enjoyed themselves while on shore in the best manner possible—generally in each other's company, on horseback, in carriages, or exploring the island and Napoleon's tomb.

Professor E. D. Preston, in charge of the coast and geodetic survey, did not report a very pleasant time during our stay at St. Helena. He, with the assistance of other members of the expedition and two naval cadets were engaged in determining the gravity and magnetism of the earth at St. Helena. He states that much light can be thrown on certain theories of volcanic action and the formation of mountains in general by studying their internal construction. This is best done by determining the force of gravity at the bottom of the mountain, and at some point near the summit. He set up two pendulums at different stations along the route, and allowed them to oscillate for several days. From this observation it is possible to calculate the velocity of a body as it falls toward the earth. This is the same as saying that it is possible to calculate the relative portion of gravity at different elevations, and from these relative forces of gravity the density and internal construction of the ground can be inferred. Professor E. D. Preston had been hard at work from early

morning to late at night on his tedious work. The work has been accomplished under difficulties, as the requisite star observations have been very hard to get on account of the clouds which generally prevail over this island.

St. Helena has often been visited before by astronomers and scientists on the same mission as that of Professor Preston. Edmund Halley, at the age of twenty, began his scientific career by a voyage to St. Helena in 1676; again, as captain of H. M. S. "Paramour," he visited St. Helena in 1699.

In 1720 Abraham Sharp, who is well known for the important assistance he rendered Flamsteed, made St. Helena the scene of scientific survey.

In 1760 Maskelyne and Waddington left England and arrived April 6th, 1761, being sent out at the expense of the Honorable East India Company.

During the year of 1796 John MacDonald made a short series of magnetic observations, and between 1828 and 1833 Lieutenant M. J. Johnson made observations for his St. Helena catalogue of six hundred and six southern stars, which was published in 1835 by the Honorable East India Company.

During 1829 Captain Henry Foster determined the force of gravity on the island by the use of the pendulum.

Magnetic determinations were also made by Admiral Duperry in 1832 while he was on a voyage of scientific discovery.

In 1840 Captain Sir James Clark Ross, in command of the "Erebus," and Captain Crozier, in command of the "Terror," left England on their famous voyage, and stopped at St. Helena in March, 1840, to land Lieutenant Lefroy, who was made captain and ordered to establish a magnetic and meteorological observatory at Toronto, at which place, as well as subsequently at the Bermudas, he did much to advance knowledge in this science.

In 1877 Dr. David Gill arrived *en route* for Ascension to

determine the solar parallel by observations of Mars, and lastly, in 1889, the United States Eclipse Expedition in charge of Professor Todd.

On the evening of the 8th all of our professors returned on board; they all appeared in good health, except Professor Preston, who looked tired out and as if he needed rest. The next day being Sunday, the usual routine was observed; in the afternoon several young ladies came on board to pay their respects and bid adieu to their friends. It appeared that several of our young men had been very attentive and courteous while on shore, and had made friends, especially among the fair sex.

Monday, the 10th of March, at 11 A.M., all hands were called to make sail. With a gentle trade-wind on our starboard quarter we were soon standing out at sea, bound for Ascension, seven hundred miles from St. Helena.

The day had been beautiful; the sun was setting with its usual splendor; the boys were assembled on deck chatting together through the dog-watch. As I was without a companion, I was watching the different objects around me, when I suddenly perceived a peculiar movement among the gun captains, who were conversing in a low tone, as with a smile they took leave of each other. Night general quarters is a very exciting affair to the whole navy, both men and officers. First, on account of there being no specified time for such exercise, and secondly, because it is supposed to be kept a secret from both officers and men. The time generally selected by the captain for this exercise is at night, when he thinks the men least suspect it.

When a captain intends to have night general quarters he will notify his executive officer, so that he will be ready to see that the exercise is carried out properly and promptly. If there is to be night exercise, the officers will certainly keep their gun captains informed, so that they will not be last, but first, to fire and report if possible. The

executive officer is generally a very close friend to his brother officers, to whom he will divulge his secrets, etc. During my five years' service in the navy, I have never known a single instance when the crew have been notified, either directly or indirectly.

The captain was walking on the weather side in company with the executive officer until about 10 P.M., when the quarter-gunner on watch reported:

"Battery all secured, sir."

"Ay, ay, sir," answered Ensign Rohrbacher, the officer on watch, when they parted, convinced that they would give us a surprise during the night.

If they had only turned their eyes upon the gun-deck battery, they would have changed their minds, but fortunately enough they did not. About 11:30 P.M. general quarters were sounded; all the electric alarm-bells rang; drum and bugle sounded to quarters; the watch below jumped out of their hammocks and tried their utmost to get to their stations, and the watch on deck tried to go down the ladders all at one time—men fell, ran and stumbled over each other, when suddenly we heard: "Boom! boom! boom!" The guns had been loaded and fired, the excitement was all over, the battery was secured, and the ship resumed silence again.

The two following days were devoted to rifle practice—our routine, however, being assiduously observed every day.

St. Helena is situated in the South Atlantic Ocean, at a distance of one thousand seven hundred miles from the coast of Africa, and seven hundred miles from the Island of Ascension. It lies between the parallels of 15° 54′ and 16° 01′ south latitude, and the meridians of 5° 29′ and 5° 48′ west longitude, its length from east to west being nine miles, and breadth from north to south nearly six miles. The area of the island is about forty-seven square miles, or thirty thousand acres, of which about eleven

thousand are cultivated, seven thousand six hundred and fifty-two are devoted to pasture, and the remainder is waste. The island is said to have been discovered by Joao de Nova Gallego, an admiral of a Portuguese fleet returning from India on the 21st day of May, 1501—the anniversary of St. Helena, mother of the Emperor Constantine. All the interest attached to this island centers in the fact of its having been the place where Napoleon passed the last days of his remarkable life.

In 1513 it became the voluntary abode of Fernendez Lopez, a Portuguese nobleman, an exile from India, who being wrecked here with a few servants and some useful animals, assiduously cultivated it, and in a few years he was called to his own country.

In 1588 Sir Thomas Cavendish, during his famous cruise around the globe, visited the island and found, as he said, "divers handsome buildings and churches tiled and whitened, very fair, and a causeway made up of stones reaching to a valley by the sea-side." This valley he describes as fair, large, and exceedingly sweet and pleasant, planted in every place with fruit, herbs, etc. Some time after the departure of Lopez the island does not appear to have been regularly inhabited, but in 1640 the Dutch attempted to establish a settlement here, which in 1651 they relinquished to the English East India Company, and to this company the entire possession of the island was granted by Charles II., in a charter dated April 3, 1661. At the close of 1677 the Dutch, by the treachery of one of the inhabitants, again obtained possession, but it was recaptured the following year by three of King Charles's ships, under Captain Munden. To accomplish the recapture of the island, Captain Munden landed a force of two hundred men under Captain Kedgwin, in Prosperous Bay, on the weather side of the island, and a successful scaling of the almost inaccessible wall is yet commemorated by a precipitous rock known as "Hold fast to me," from a caution

given by the gallant blue jacket who first ascended to fix a rope for his comrades. While this company was advancing through the island, Captain Munden sailed around to James Valley, and opened on the Dutch forts simultaneously with the attack from the heights. The name of the commander has been handed down to posterity by the erection of a fine work on the cliffs now known as Munden Battery.

James Bay, the port of the island, is a small indentation on the leeward side, abreast of James Valley, bounded by two high, rocky hills—Ruperts on the east, and Ladder on the west. In this confined spot is situated Jamestown, which is entered from the sea-side through an arched gateway, within which on the left is the Government House, and on the right is the church, a plain but not inelegant building, having a remarkable wedge-shaped spire, which is plainly seen from the harbor. The houses generally are two stories high, neatly built in the English style, and whitewashed. The shops are plentifully supplied with English and Asiatic products, and the prices are invariably very high. The town contains many little gardens, groves, and shaded walks, and extends the whole length of the valley, which gradually decreases in breadth as it recedes from the sea. The residences of the principal inhabitants are built on the higher and cooler parts of the island. One of the handsomest of these villas is Plantation House, an elegant mansion belonging to the governor. It is situated in the midst of extensive grounds, adorned with a variety of fine trees and shrubs.

On the right, or western side, the valley is bounded by a steep promontory called Ladder Hill, the ascent of which, by a well-engineered zigzag road, is very easy; a ladder also leads straight up its face to the artillery and barracks. On the eastern side of the valley the carriage-road, called Side Path, leads up to the interior of the island. This road, which was made with great labor and

difficulty, has an easy ascent transversely to the level above, from which the aspect is striking and delightful, the view only being terminated by the sea horizon.

Longwood, the residence of the Emperor Napoleon, stands on the plateau of Longwood, toward the east of the island. A considerable portion of this plain is planted with trees, but is deficient in water. It is one thousand seven hundred and sixty-two feet above the sea, and forms another point of view. The scenery here is enlivened by a small winding stream, which falls from the highest peak into the valley.

The only landing-places are in Ruperts and James Bay. On the shores of the former, facing the sea, stands a strong battery of heavy guns. For want of water the valley is not inhabited. James Valley is defended by works extending across the head of the bay, and flanked by a high, inaccessible battery on Munden Point, close under which all vessels wishing to anchor in James Bay must pass.

The Island of St. Helena is usually sighted by ships from a distance of sixty miles, when it looks like a huge pyramid-shaped fortress rising from out the sea, presenting no sign of vegetation, but on nearer approach the prospect gradually improves, though the precipitous and almost inaccessible cliffs appear more striking when contrasted with the verdure which marks the summit of the surrounding hills. The island is walled in by precipitous cliffs from sixteen hundred to eighteen hundred feet in height, intersected by chasms, which serve as outlets for the stream from the high lands of the interior, and terminate in small coves more or less exposed to the fury of the sea. The island is divided into two unequal parts by a lofty ridge of mountains from two thousand to two thousand seven hundred feet above the sea level, extending in a semi-circular sweep from the south-west point to Stone Top Point on the south-east. The principal peaks of this range are: Diana, two thousand seven hundred feet high;

High, two thousand six hundred and thirty-five feet; Halley's Mount, two thousand four hundred and sixty-seven feet, and Flag Staff, two thousand three hundred and seventy-two feet high—these being the highest points in St. Helena, and were caused by earthquakes and volcanic eruptions, which were noticed in 1756, 1782, 1817, and 1867. Several of the peaks have assumed curious and fantastic shapes—two of the most remarkable are situated near the south coast, and from some imaginary resemblance have been named Lot and Lot's Wife.

The climate of St. Helena is salubrious. The temperature, as a matter of course, varies according to the elevation and exposure. Ladder Hill is the conspicuous place of the town. It was built in 1850, and was equipped with a rope tramway, but the car came to grief—since which time a ladder nine hundred and thirty-three feet long, has been devised and reaches the vertical height of six hundred and two feet, having six hundred and ninety-nine steps, each with a vertical rise of 10.32 inches. The average slope is thirty-nine degrees, but as it follows the steepest angle of the hill the steepest angle is forty-four degrees.

During our stay at St. Helena, a minstrel troupe was organized under the management of B. Hartington, to give an entertainment in aid of the Baptist Chapel, the success of which was greatly enhanced by the kindness and assistance of Captain Yates and Lieutenant-Commander Stanford. Having received the permission required, it was not long before Hartington had all the men assigned for the most important part of the programme. Garrison Theater was secured, and in a week the programmes were printed—a copy of which is given on page 128—and distributed through Jamestown, stating that the U. S. S. "Pensacola's" minstrel troupe had kindly offered to give an entertainment on Thursday the 6th of March. The whole town turned out to attend the entertainment, and

by 8 P.M. the little theater was overcrowded, and many were refused admittance. The programme was one of the most excellent that had ever been offered to the inhabitants of St. Helena. The orchestra consisted of two violins, clarionet, and piano, under the leadership of Signor Savasta. The entertainment was opened by an overture, march, "Good-bye," followed by the opening chorus by the entire company, entitled "In the Evening by the Moonlight." "Baby Laughing in her Sleep," by S. Ruden; "A Boy's Best Friend is His Mother," by Dell Perkins, and "Light in the Window," by James Sullivan, followed by a comic ballad entitled "Listen to my Tale of Woe," by E. H. Lowes. All were well received and loudly applauded. "Marguerite," by P. Clinton, and "Rocked in the Cradle of the Deep," by H. Beamer, carried the house by storm, and the performers were obliged to appear a second time. "The Song that Reached my Heart," by B. Hartington, and the comic song "Hard to Love," J. J. Rochfort, were equally well received. The jokes of Bones (J. Rochfort) and Sambo (H. L. Lowes) were especially good and kept the audience convulsed with laughter. Part Second opened with a stump speech by J. Hoey, which was very good. The song and dance by P. Clinton was exceptionally fine. The laughable farce entitled "The Boxing Master" between Sidney Grip (Simon Smith) and Professor Knock-em-Out (H. Myers) provoked roars of laughter. After this came a character song, "I'm a Dude," by S. Ruden. Next a violin solo by Signor Savasta, variations of a selection from the opera of "Lucia de Lammermoor" with piano accompaniment by M. Eugéne Rosette, brought down the house, and Savasta was obliged to appear a second time. "The Black Statue; or, True Love Never Runs Smooth," was excellent. In Part Third the amusing sketch, "The Academy of Stars," brought forth rounds of applause, especially when Black Jack (J. Rochfort) bounced the unlucky petitioner and Dandy Pat

(James Sullivan), an Irish comedian, who was the dead image of "Old Erin." Antonio Gonsalos, "Tragedian" (S. Ruden), and "The Frima Donna" (Dell Perkins) were worthy of admiration, as were also "Whisky Jack" and "The Manager" (R. Zehnder).

The above were followed by an Irish character song rendered by James Sullivan, and "The Sailor's Hornpipe" by P. Clinton, and were very pleasing to the audience.

The entertainment concluded with a grand illuminated tableau, "The Goddess of Liberty," during which the entire company, accompanied by the orchestra, sung "The Star-spangled Banner."

We had among us on board comedians, musicians, orators, etc., but we were all really astonished to learn that we also had a reverend among us. On the evening of the 14th of March a notice was posted on the bulletin as follows:

"Gentlemen, you are all especially invited to attend a lecture to-night on the subject "Where is my Treasure?" by the Reverend J. T. Wilkins."

We all assembled in due time around the dim light of the forecastle patiently waiting for his appearance. At last he came before us, and seemed to be very much astonished that there were so many present. His text was as follows: "Where is my treasure? For where your treasure is there your heart will be also." As an introduction he noticed briefly the author of the text, then took up the subject. He was here interrupted by some sailors who started singing "Where is my Wandering Boy To-night." He seemed used to offenses of this kind, as it did not interrupt him in the least. He showed the contrast between earthly treasures and laying up treasure in heaven. In conclusion he asked "Where is your treasure?" "In the paymaster's safe!" they all sung out in chorus, and started in singing "Light in the Darkness, Sailor, Day is at Hand."

And as he could not finish his sentence he was obliged to desist. The lecture was very good, and the speaker did not seem to want for words. The Rev. J. T. Wilkins is colored, and stated that he was at one time pastor of the Bank Street Baptist Church in Norfolk, Va., but for some reason or other he left to join the navy, and was at present holding a steward's position on board.

Early on the morning of the 16th we sighted Ascension, and at 9 A.M. the "Pensacola" came to anchor in Clarence Bay, off Georgetown, in Ascension. Here lay the English flagship "Raleigh" and gunboat "Archer" with half-masted colors. Through a matter of courtesy we half-masted our ensign, and later ascertained that one of the crew had died on board the "Raleigh" and was about to be buried. The "Raleigh" took her departure the following evening, and the "Archer" on the 19th, after having torpedo practice.

Ascension is an island of volcanic origin and situated in the South Atlantic Ocean between parallels of latitude 7° 53′ 15″ and 7° 59′ 21″, and between the meridians of longitude of 14° 18′ 25″ and 44° 25′ 50″ west.

It is of an elliptical form; its greatest diameter from east to west is seven and a half miles; its shortest from north to south a little more than six miles. The area is thirty-eight square miles; its circumference twenty-two miles. The island was first discovered in May 20th—Ascension-day—1501, by Joao de Nova Gallego, a Portuguese, and visited two years afterward by Alphonso d'Albuquerque, who gave it its present name.

The surface of the island is exceedingly irregular, and from the sea presents a rugged and uninviting appearance. The greatest elevation is the peak of Green Mountain, so called from the color of its summit, which is two thousand eight hundred and twenty feet above the sea, and may therefore be seen from a frigate at a distance of sixty-five miles. From the summit of Green Mountain, about forty

tumuli of different magnitude may be seen, being extinguished craters, which have actually given vent to internal fires, and from many of which the direction of the lava currents may be traced on their way to the sea. Green Mountain is surrounded by numerous other craggy peaks of less elevation, having between them deep gorges and dark ravines filled with scoria, pumice stone, and other igneous products.

As the longitude of Ascension has been well ascertained, and the island lies in the track of homeward bound ships from the Cape of Good Hope, it is generally sighted by most vessels for the purpose of verifying their longitude, though without any intention of anchoring.

Ascension is said to have received its name from the fact of its having been discovered on Ascension-day—sometimes called Holy Thursday—which is one of the great festivals of the Episcopal and Roman Catholic churches. It falls on the fortieth day after Easter, and is intended to commemorate the ascension of Christ. Ascension-day has been observed from the earliest time of the Christian Church. From the writings of the great St Augustine. we will find that he believed this day to have been instituted either by the apostles or by the primitive bishop succeeding them. Though sometimes called Holy Thursday it is not to be confounded with the Thursday of Holy Week.

The soil of this island is mostly lava, but in a rapid state of decomposition; most of it is very dry and porous, and no sooner does the rain fall than it is absorbed and disappears. The principal cultivation is on the Green Mountain, where the fain falls more frequently than on the less elevated parts of the island. The principal garden is two thousand five hundred feet above the sea, and there the climate is delightful, the average temperature during the day being about 75°, while at the landing-place it is usually 85°; the temperature of the peak is still lower. The summit of Green Mountain is covered with rock, roses, and several

species of fern and moss indigenous to the soil, which rises like an oasis midst waste and desolation, for around it is to be found neither verdure, shade, nor shelter. As early as 1830 there were one hundred acres under cultivation. In the rich soil contained in many ravines and hollows no doubt fruit-trees will ultimately be planted. The mountain is generally more or less obscured by a mist some part of the twenty-four hours, and the condensation supplies a large quantity of water, which is conveyed through pipes to covered tanks in Georgetown, and not only supplies the residents of the island, but also affords a considerable quantity for shipping. There is a road from Georgetown to the Green Mountain, the distance to the port being three and one half miles, and to the summit six miles. A neat little establishment known as the Mountain House stands at an elevation of two thousand two hundred and fifty feet above the sea, and is picturesquely situated on the brow of the hill. The view from this place over the whole island is grand. Craters of extinguished volcanoes of various heights are seen in all directions, but not a vestige of vegetation below the mountain. A crater more rugged and terrific in appearance than the rest, known as the Riding School Crater, lies to the eastward of Green Mountain, and is accessible by means of a road winding to its summit, which is walled in by a bridge of lava.

In 1830 a collection of government buildings and wooden houses had become dignified with the name of Georgetown, and a cottage for the governor was erected on the side of Cross Hill, overlooking the town, fort, and bay. By the month of March, 1833, the island was fortified at all accessible points, and the establishment numbered nearly three hundred souls. A new battery fort—Thornton—had been constructed close to the landing-place, mounting seven guns, and near it a large covered tank to contain one thousand seven hundred tons of water. Iron pipes of three and one half inches in diameter, and extending thirty-three

thousand feet, had been laid, reaching from Green Mountain to the town and brought down in many places perpendicularly, especially between the mountain. A tunnel nine hundred and thirty feet long and six and one half feet in height had also been cut through a solid mass of cinder two hundred feet above the government buildings at the Green Mountain, through which to put a pipe to carry the water. At present there are only one hundred and fifty people living on the island, all of whom are under the control of the governor, who is a captain in the royal navy. The island was formerly the head-quarters of the west coast of Africa squadron, and depots of stores, provisions, and coal were formed for the use of cruisers, and a small machine shop erected, but as the slave trade has been destroyed the vessels formerly employed in its suppression have been greatly reduced, and the head-quarters removed to the Cape of Good Hope. A small supply of stores are still kept on the island. Vessels proceeding thither should, if possible, fill up with water at their last point of departure, as it is only supplied at Ascension in case of absolute necessity. The English have placed a high price on all stores and supplies to be obtained from the government store house, in order to discourage a dependence upon them for such articles. The use of the island now is as a sanitarium, and a good staff of medical officers is maintained. The climate is singularly healthy, owing to its being situated in the heart of the south-east trade-winds, which cools and ventilates every part of the island. Such are the effects of pure air, and so little is high temperature conducive to disease, that the enfeebled invalid from Africa recovers energy and strength under the refreshing influence of the sea breeze.

Ascension is visited by sea turtles between December and July. It is supposed that during the above period each female makes three or four nests. The animal remains on the coast until fifty or sixty eggs are fit to be de-

posited in the sand, and lands on the beach between ten at night and four in the morning. She then proceeds one hundred and fifty to two hundred yards above high-water mark, digs a large pit about eight to ten feet in diameter, and two or three feet deep, in which the eggs are deposited, and carefully covered over with sand, the process of incubation being left to nature. In nine or ten weeks the young turtle breaks its prison house, working its way through the sand, gains the surface, and immediately takes to the sea, after which it is never seen again until fully grown. Should this short journey, however, happen in daylight, many of the young animals are picked up and devoured by the man-of-war birds, who are ever hovering over the turtle nests. During the height of the season, fifty or sixty turtles are frequently turned in a night when they come to deposit their eggs in the sand. On such occasions men are stationed along the bays, who turn them over on their backs, in which position they are perfectly helpless, and are then transferred to ponds in the town formed for their reception. The turtle when fully matured weighs from four hundred to eight hundred pounds; and it is worthy of note that no male turtle ever makes his appearance on the beach. Turtle may be purchased, but the turning of turtle by strangers is strictly prohibited, and any person guilty of a breach of this regulation is subject to a heavy fine. There is an abundance of excellent fish among the rocks throughout the year, such as rock cod, mullet, conger eel, and cavalhoes.

Among the articles of food obtained at Ascension the eggs of the tropical swallow or wide-awake furnish an important item, and as many as ten thousand dozens of this luxury have been taken in one week during the season, which is irregular, and occurs about three times in two years. In appearance the eggs resemble those of the plover; and though the bird is small, the size of the egg is nearly equal to that of the domestic fowl. The indigenous

birds are nine in number, and includes the man-of-war bird, which is black and white, measuring seven feet from wing to wing; two kinds of gannet; two of petrel, and the boatswains' bird. The animals native to the island are wildcats, goats, rats, and land crabs also abound. The insect tribe is dreadfully annoying. These are so numerous that at meal-time the table-cloth is black with ants and mosquitoes, while scorpions, centipedes, large spiders, and crickets abound. The only attractive insect is the mountain butterfly.

One of the most interesting phenomena at Ascension is the rollers, or in other words the heavy swells, producing a high surf on the leeward shore of the island, which occur without any apparent cause. All is tranquil in the distance; the sea breeze scarcely ripples the surface, when a high swelling wave is suddenly observed rolling toward the island. At first it appears to move slowly forward, till at length it breaks on the outer reef; the swell then increases, wave urges on wave, until it reaches the beach, where it bursts with tremendous fury. The rollers now set in and augment in violence until they attain a terrific and awful grandeur, affording a magnificent sight to the spectator and one I have witnessed with mingled feelings of terror and delight. A towering sea rolls forward like a vast ridge of water, threatening, as it were, to envelope the island; pile upon pile succeeds with resistless force until meeting with the rushing offset from the shore, which rises like a wall, and is dashed with impetuous fury on the long line of coast, producing a thundering noise; the beach is mantled with foam, the waters sweep over the plains, and the very houses in the town are shaken by the fury of the waves. If the wind is off the land the overreaching top of the roller meets resistance, and is carried as it were back against the curl of the swell, and thus it plays above it as it rolls furiously onward, graceful as a bending plume, while, to add more to its beauty, the sunbeams are reflect

from it in all the varied tints of the rainbow. Amid the tranquillity that prevails around, it is a matter of wonder why the rollers should occur in the most quiet season of the year, when the south-east trade-wind is often very light, and when the vast volume of water is constantly impelled in one direction.

The rollers at Ascension are caused by distant gales of wind either from the North or South Atlantic.

Having landed Professor Preston on shore, we settled down to spend the time the best way we could in this lonesome and unattractive place. Routine was observed very closely, such as sail drill, spar drill, gun drill, boat drill, and general quarters. I can assure you there was no lack of drill; but for all this we always had a few hours to spare for fishing, etc., and bucketfuls of fine fish were caught by means of a troll, to which was attached four sharp fish-hooks, and in hauling in the line we were always rewarded with one or two fish each time. But this was too easy a way of catching fish, and there was scarcely enough fun attached to it to satisfy us. Almost every evening a party would leave the ship for the fishing grounds, taking with them all sorts of tackle, and return in a few hours with rock cods, mullet, and conger eel, which were highly relished. Our officers tried turtle-turning. They also were blessed with good luck, as it required the steam launch to bring on board the six fine-looking turtles. These were prepared in all sorts of choice dishes, but very few seemed to relish the rich meat.

On the 4th of April the American whaling bark "Kathleen," Commander Gifferd, homeward bound from the Indian Ocean *via* St. Helena, brought our mail. You can imagine how welcome news from home was in this lonesome place. A letter is the best present that can be sent to a man away from home. Captain Gifferd had succeeded very well during his thirty months' cruise. He had one thousand seven hundred barrels of sperm oil and fifty

of whale oil, and intended to call at one or two whaling grounds on his homeward passage.

For some time the colored sailors among us had desired to give an entertainment, and the 4th of April was the day designated by them. The quarter-deck was handsomely decorated with electric lights and bunting for the occasion. Programmes had been printed in grand style by the ship's printer, and at 8 P.M. everything was in readiness. The orchestra consisted of one violin, two clarionets, one contrabasso, and piano under the direction of Signor Savasta. The programme opened with an overture by the band, entitled "Waltz Isabella." Interlocutor was taken by James Gilliard; Bones by Samuel Fields and W. T. Green; Tambourines by C. W. Hunter and J. M. Harden. The song "Fisher Maiden," rendered by R. Turner, also "Oh, dat Watermelom!" by W. T. Green, were well received. In the second part of the programme the most striking feature was the song and dance by H. Rogers and S. Frazar, which was loudly applauded, and the performers were obliged to appear a second time. "My Mother was so Kind and Gentle," as rendered by the quartet, Messrs. Turner, Datcher, Walker, and Harden, was excellent. These gentlemen are first-class artists, and I think it would be hard to find a finer quartet in Uncle Sam's Navy. As usual the violin solo by Signor Savasta brought down the house.

Part Third was opened by a sketch and song entitled "Old Black Joe," by C. W. Hunter, which brought to mind the dark days of slavery in the Southern States. The performance concluded by a regular "Darktown Cake Walk" by the entire company.

Liberty was granted to first-class men until sunset, and many availed themselves of the opportunity, more as a matter of curiosity than pleasure.

On the 7th of April Professor E. D. Preston had finished his observations on the island. Preparations were imme-

diately made to get the instruments on board; and on the 8th the professor returned in good health and well pleased with his observation. At 2 P.M. anchor was weighed, and we were bound for the Barbadoes. The weather was excellent the first week out, but as we gradually approached the equator it became squally, and the south-east trade-winds died out. As the "Pensacola" pursued the merchant vessels' homeward-bound route, we had the pleasure of passing from one to three each day until we reached the line, when they became more scarce.

On the 16th of April we were within a few miles of the equator. The wind had died out entirely, and it was very uncertain how long we should be becalmed. Fires were soon started, and by 4 P.M. the "Pensacola" steamed ahead. In the afternoon we passed very close to a full-rigged vessel flying the English flag. She made her number, "L F B B," an international signal, "B L C," we answering by our number—latitude 0° 46′ 11″ south, longitude 27° 23′ 48″ west.

The ship was now in the "Doldrums," or "Horse Latitude," as it is called by the sailors. The weather was excellent and the sea calm during our run across the equator, the ship plowing the sea with all her force, until the 18th, when we reached latitude 3° 52′ 57″ north, and longitude 30° 29′ 30″ west. We then began to feel the north-east trade-winds, which brought us a light rain. The wind increased gradually during the day; in the evening fires were put out, and we made sail. On the morning of the 17th a cry was heard from the fore-topsail yard:

"Sail ho!"

"Where away?" Ensign Mayers, officer on deck, sings out from the after-bridge.

"Right ahead, sir."

"Can you make her out?"

"A sailing vessel heading this way."

"Orderly!"

"Ay, ay, sir!"

"Report to captain a sailing vessel is heading toward us."

"Ay, ay, sir!"

By 9 A.M. the little brig was on our starboard beam, with a man in her rigging holding the American flag. We hoisted our colors and made "B D," to which they answered "J L T V."

On the morning of the 29th of April the water became very dark, which indicated that land was close at hand. In the evening lookouts were stationed aloft to keep watch for lights. At 9 P.M. we heard a cry of "Light ho!" from the fore-cross-trees, and immediately red lights came into view.

The night was beautiful and very quiet; all that could be heard was the leadsmen singing out the depths and marks on the lead-line in the still night, while we were stealing our way through the many merchant vessels lying at anchor in Carlisle Bay, and at 11:45 we let go our anchor alongside H. M. S. "Tourmaline." The following morning national salutes were exchanged, and during the day the "Pensacola" was visited by United States Consul Dimereck and Adjutant and Quartermaster General Colonel J. E. V. Hill of the English West India forces. Both were received with honor due their rank.

ANTILLES.

ANTILLES is a term used to designate the whole of the West India Islands except the Bahamas. The name is generally supposed to have been given by mistake to the West India Islands. Before the discovery of America by Columbus, a tradition existed that far to the west of the Azores there lay a land called "Antilla," whose pos

was vaguely indicated on the maps of the early cosmographers. Only eight months after Columbus returned we find one Peter Martyr writing that the island which the great navigator had touched upon must be The Antilles, and it is certain that Cuba and Hayti were known as such before a single link in the Caribbean chain was discovered.

Barbadoes Island was taken possession of by the English in 1605, in whose hands it has since remained. The land rises in successive distinct terraces interrupted by numerous and deep ravines on the central ridge, especially Mount Hillaby hills of a conical form ranged in direction toward the sea. This highland is called Scotland. The hills are rugged and worn by the heavy winds, and the torrents which pour down their sides. The south part of the island consists of rocks of coralline lime-stone with beds of calcareous marl containing numerous shells of various species. The eastern part is composed of strata of siliceous sand-stone intermixed with ferruginous matter, calcareous sand-stone passing into siliceous lime-stone, different kinds of clay celenite, earthy marls—recently containing minute particles of pumice—strata of volcanic ashes, seams of bitumen, and springs of petroleum.

The island is very attractive and seems like a well-kept farm. The average yearly rain-fall amounts to fifty-eight inches. The greatest rain-fall ever known in Barbadoes occurred in October, 1867, when six inches fell inside of four hours. There are several medicinal springs containing chiefly iron, carbonic acid, and alkili in different proportions. Barbadoes is considered one of the healthiest of the West India Islands, and the climate, though warm, is very salubrious, the temperature varying from 85° and 90°, the minimum being 80°, and the maximum 95°.

Moncrieffe Hill Signal Fort stands five hundred and twenty-one feet above the level of the sea; and about midway between the eastern and western sides of the island is the Mount Hillaby, the highest peak. The high ridge

terminates on the Pico Teneriffe, about four miles from the northern point of the island, which is a remarkable hill two hundred and sixty feet high, which at a distance appears almost detached from the shore. Barbadoes is the most easterly of the Caribbees, its area about one hundred and sixty-six square miles, of which a part is under cultivation. The island is divided into twelve districts or parishes.

We soon landed Professors Preston and Abbe, with their instruments, on shore, and were ready to go through our usual harbor routine of scrubbing hammocks, bags, and cleaning ship. After coaling was finished, wages were paid and liberty granted, but very little money was spent, owing to the large deduction made by the English banks on American money. I believe one and three fifth cents was demanded on the American dollar. The commander would not grant that deduction, and consequently very little was issued.

Bridgetown is the capital of Barbadoes, and situated in latitude 13° 4′, and longitude 59° 37′ west. The capital is built upon a rivulet in line with Carlisle Bay, which extends two miles to a rocky islet, called Pelican Island, to which is attached the quarantine buildings. Bridgetown was founded about the middle of the seventeenth century, taking the name of "Indian Bridge," and subsequently its present name, from an antiquated structure which spans a neighboring creek. The city, however, is about one hundred years old, and has experienced many devastating fires and hurricanes, the fires of May, 1766 and 1845 having each time laid the city in ruins.

The city itself is unattractive, owing to its irregularity; however, it contains some fine buildings and a public square, in which stands a statue of Nelson.

The streets are paved with coralline lime-stone, and the wearing of the white stone grinds it to powder, giving the city a very dusty appearance. All the modern improve-

ments are to be found here, such as telephones, telegraph, street cars, and railways connecting all places of importance. Water in abundance is brought from Newcastle, a small village on the east, and carried through the city by the ordinary system of hydrants.

Bridgetown is the residence of Sir Joseph Sendall, who is governor and commander-in-chief of the Island Barbadoes, chancellor ordinary, and vice-admiral of the same. The bishop also resides here. It has a cathedral and Jewish synagogue, both of which are very handsomely decorated on the inside, the latter being supported by the Jews of America. Most of the churches in the town are very plain, their steeples scarcely rising over the roofs of the adjoining houses. Most of the denominations are represented, principal among which are the Church of England, Wesleyan, and Moravian. The population is about ninety thousand, of which only three thousand are white.

I visited Mr. B. H. Belgrave's museum at West Endville. Very few Americans have visited Bridgetown without having visited this museum. It is a neat little two-story frame building, situated close to the sea beach. What most attracts the attention of the visitor when he arrives at the museum is Uncle Tom, the large baboon who is inclined to be very friendly. The museum is well supplied with a fine assortment of marine specimens. Among the coral collection I noticed a very slender coral stem about two feet long, formed like sugar-cane. The specimens were secured in sixty fathoms of water. The lace and pink coral were magnificent. Among the shell species was the *Conus Generalis*, which is highly valued by collectors, and brings a price higher than almost any other shell—as much as three hundred guineas having been given for a single specimen. The Argonauta, commonly called paper nautilus, measured nine and one third inches wide, and six and one third inches high, and is well-known from the whiteness and delicacy of its shell.

It is not chambered, as in the true nautilus, but possesses one spiral cavity into which the animal can withdraw itself entirely when in danger.

These various species of snails are found in tropical countries, and grow to a large size, the eggs being as large as those of a pigeon. A species of the allied genus which I saw there were the achatina, which measured four inches in length. The eggs measured one inch in length, and closed in a brittle, calcareous shell. Among the specimens of animals was the whistling frog, pearl shark, eagle fish, sponge crab, etc. Among the birds was the whidah finch, which is remarkable for its plumage. During the breeding season the male resembles the female. The name has been corrupted, however, to windo bird, which was thought not inappropriate.

The collection of money was limited but very rare, among it being a silver coin the size of a fifty-cent piece, which was gilded, and in the center had a peculiar inscription which I could not decipher. On one side it had two knights dressed in a coat of mail standing by the table kissing each other; and on the table was fruit and wine, and on the other side was a chicken on her nest. Among the copper coins were two from Barbadoes, marked 792 and 788.

The most interesting of the curiosities were the ancient tools used by the natives on the Caribbean Islands before iron and steel were introduced.

Having spent nearly a whole day among the Belgrave curiosities, I was obliged to leave.

Besides the capital, Barbadoes contains three other towns, all more or less in a state of decay—Jamestown, Speightstown, and Oistin.

Bridgetown having become rather monctonous, we longed for new sights, and the 10th of May was designated by the commander as the time on which we were to take our departure. On the 8th Professors Preston and Abb-

finished their observations on the island, and on the 10th the "Pensacola" was ready for sea. At 11 A.M. the first and second cutter were ordered ashore to bring on board the professors and their luggage, which consisted of twenty large boxes of instruments and eight Saratoga trunks.

At 1 P.M. all hands were called, anchor was weighed, and soon the steam capstan was turning round and round, bringing in the chain, and in about ten minutes Lieutenant Hall, in charge of the forecastle, was heard singing out "Anchor in sight—clear anchor." The helm was put to starboard, the ship swung nobly about, and we bid adieu to H. M. S. "Tourmaline." The band struck up "God Save the Queen," "Yankee Doodle," and several other songs. The ships in harbor dipped their flags gently, bidding us adieu. When well out of the harbor all plain sail to a royal was made. The weather was very promising, and we were happy and jolly to think we would soon be home among our dear friends.

There was no change in the routine the first two days out, until the 12th, when a peculiar headache, pain in the back, chest, etc., began to be prevalent among the officers and men. The new disease spread very rapidly among us all. It appeared to be contagious, as we all more or less had a touch of it. After four or five days' close confinement in the hammock and good attendance, the patients were well again. The "Pensacola" now had the appearance of a floating hospital.

The night of the 14th of May was clear and bright; the ship was moving gently under the easy pressure of the wind, when the silence was broken by the lookout shouting:

"Light ho!"

"Where away?" was the reply from the after-bridge.

"Forward beam, sir."

"Ay, ay."

Soon we found it to be a full-rigged vessel heading down upon our starboard, and in another minute she would have

crashed into us, but the helm was put to starboard just in time to allow the ship to clear us. We hailed her from the forecastle, but no reply could be obtained, and she was soon out of sight.

On the 19th of May we sighted the Island of Bermuda, and on the 23d of May, 1890, we arrived in New York.

EXTRACT FROM "THE CRUISE OF THE U. S. S. 'BROOKLYN.' BY LIEUTENANT BECHLER.

"After the battle of Waterloo the Emperor Napoleon Bonaparte returned to Paris, abdicated the imperial throne, and proceeded to Rochefort, where he voluntarily went on board the 'Bellerophon' and surrendered to the English. The allies then decided to send him to St. Helena, where he arrived in the 'Northumberland' on the 15th of October, 1815. He landed at Jamestown, and was accompanied by General and Mme. Bertrand and three children, General and Mme. Montholon and two children, Count Las Casas and his son General Gourgaud, Captain Protowski and Dr. O'Meara. He also had eleven male servants, holding various appointments in the household, first and second *valet de chambre*, first and second stewards, etc., and one female cook, an English gardener, twelve soldiers as servants, and the servants of the generals, so that in all the establishment numbered fifty-five persons.

"Napoleon proceeded to a house adjoining the public gardens on the left of the main street in Jamestown, where he passed the first night, and early the next morning rode out to Longwood to see the place which had been selected for his residence. Longwood is situated in the central zone, about five miles by road from Jamestown. It overlooks the sea at Prosperous Bay, and is in an unsl

position on the windward side of the island. The house was built in 1743 under Governor Dunbar, and intended for a barn. It was subsequently converted into a residence for the lieutenant-governor, and was vacated by him for the illustrious exile. The small bleak cottage needed considerable repairs before it could be made a suitable residence, and when Napoleon rode back he expressed a wish to stop at The Briere, and thereby avoid the annoyance of the crowd of people who waited his return to town. The request was granted, and the proprietor, Mr. Balcombe, arranged a pavilion attached to the estate for his accommodation. This pavilion was too small to accommodate any more of his staff than Count Las Casas and his son, who occupied one of two rooms in a little attic over the only room on the ground floor. Napoleon occupied a camp bed, and was obliged to submit to many discomforts. A tent was prepared in front of the pavilion to which his bed was removed shortly afterward.

"Mr. Balcombe and his family showed their illustrious guest every attention, and as his two daughters were well educated and spoke French fluently, Napoleon became much attached to the family, and often amused himself in the boyish games of Mr. Balcombe's sons. One of the daughters—Miss Betsy—published 'Recollections of the Emperor Napoleon,' which contains many anecdotes of that period. Miss Betsy was a very lively young lady, and on one occasion, while fencing with Napoleon, succeeded in pinning him with a sword in one corner of the room. The world's conqueror conquered by a woman!

"In the course of a few weeks Admiral Cockburn had, by employing carpenters and men from the ships, completed the repairs at Longwood, to which Napoleon removed on the 9th of December. Longwood was distasteful to Napoleon from the first. The thought that he was to pass the rest of his life there, and that every precaution short of force, and force if necessary, would be taken to keep

him there; that every movement would be watched by sentries and that escape would be impossible, would have marred the beauties of the most luxurious palace in the world. Added to the forbidding aspect of the barren ridges, heavy, chilly rain storms frequently prevailed, which had a most depressing influence, so that no wonder the small, inconvenient house of Longwood was so much disliked by the world-conquering prisoner who a short time before had given away kingdoms to his brothers and favorite generals.

"The house at Longwood was a low, rambling, wainscoted building, its plan being in shape like the letter T. The main entrance at the foot of the T led into an anteroom which had three windows on the west or lee side. This room opened into the salon, back of which were the rooms of the main building, with dining-room and library on the left, and two bedrooms—one being used as an office—on the right. Back of the bedroom a bath-room adjoined; then a small waiting-room, a passage and the kitchen. Back of these rooms was a billiard-room. Napoleon occupied six rooms—salon, dining-room, office, library, bedroom and bath-room. The attic, access to which was gained by a small stairway in the rear of the dining-room, and other rooms in this and adjoining buildings, were occupied by his suite. Some of the latter had to occupy tents, and the Count and Countess Bertrand were lodged in a small house at Hut's Gate, about a mile from Longwood.

"Specific charges were made against Admiral Cockburn as soon as arrangements for the security and comfort of Napoleon and his household were completed, in which Napoleon protested against the manner in which this duty was performed. The charges were refuted by the admiral, and all complaints against the quality and quantity of articles supplied for the household were promptly attended to.

"On the 14th of April, 1816, Sir Hudson Lowe arrived

and relieved Colonel Wilks as governor of the island. One of the first acts was to send word to Napoleon that he would call at Longwood on the 16th to pay his respects. Sir Hudson arrived at Longwood with Admiral Cockburn and staff about nine o'clock in the morning, an hour when the governor must have known that Napoleon was not in the habit of receiving any one. He was told that the emperor was indisposed and would not see him, but appointed next day between 1 P.M and 5 P.M. for an interview. The governor then returned and made his visit, accompanied as before, at four o'clock the next day. On the governor being called for by the attending officer, Sir Hudson Lowe rather abruptly entered the apartment, where Napoleon stood to receive him, while the admiral, who was to present him, did not reach the door until after it was closed by the attendant, and was then refused admittance. This, though trivial under the circumstances, should not have occurred, and gave rise to correspondence and official interviews for some time. Authorities differ as to Napoleon's being delighted with the attendant's promptitude in shutting the door in face of the admiral; while Count Montholon stated that Napoleon was vexed at the oversight, and requested that his regrets for the occurrence be extended to Admiral Cockburn. The interview was unsatisfactory to both parties, and left a disagreeable impression. Napoleon could not divest himself of the idea of his having been an emperor, while the governor felt as a military man to whom as such the safe custody of the illustrious exile was committed, that everything depended on his fidelity to the trust.

"A few days afterward a document was received from the governor, which in accordance with instructions from England, required all the members of Napoleon Bonaparte's suite and domestic establishment who wished to remain at St. Helena to sign a declaration that they were willing to be placed under the same restrictions which it might be

considered necessary to adopt toward Napoleon Bonaparte personally. Napoleon was very much vexed at being designated as Napoleon Bonaparte, which in the documents appeared a second time. The officers were annoyed by the tenor, which implied a doubt as to their devotion to Napoleon, and they and the servants signed a paper in which they declared their intention of continuing 'In the service of His Majesty the Emperor Napoleon, however distasteful remaining in St. Helena might be, and of submitting to whatever unjust and arbitrary restrictions had been placed over his majesty and the persons in his service.'

"Shortly after this the British officer, who had orders to personally see Napoleon twice daily, reported that he had not been able to do so on the day before. The governor then visited Longwood, and was admitted. He found that Napoleon had been ill the day before, and was still suffering. He complained of the treatment he was receiving; was dissatisfied with the orders and regulations of the governor respecting his being always accompanied by an officer, and objected to the limited space allowed him for exercise. The governor's manner was not so abrupt on this occasion, but some unpleasant correspondence took place after the interview, and the following orders were issued:

"'1. That General Bonaparte should indicate twice daily, to the officer appointed for the purpose, his actual presence at the house, either by personal interview or other certain means.

"'2. All communication between Napoleon's household and the inhabitants of Jamestown was prohibited, except through a person appointed by the governor.

"'3. That no person should have an interview with Napoleon without the governor's permission.'

"A proclamation was issued warning the people against conveying any letters to or from members of Napoleon's

household, as all correspondence must pass through the governor's hands.

"About this time the wife of the Governor-General of India stopped at St. Helena, and in order to gratify her wish to see the wonderful exile, the governor invited Napoleon to dinner at The Plantation, to which invitation Napoleon gave no reply. The breach continued to widen between the governor and Napoleon, and no improvement took place in their position toward each other. Napoleon was permitted to walk or ride alone, or with his staff, within an area of about twelve miles in circumference, comprising the Longwood and Deadwood estates; but beyond this limit he was always to be followed by an officer, who was ordered never to lose sight of him for a single instant. The 53d Regiment was encamped on the plain at Deadwood; sentries were posted all around, and signal stations established all over the island, so that every movement was constantly observed and reported to the governor. At night the sentries were drawn so close that no person could pass between them without being seen, and Napoleon was never allowed to leave the house after 9 P.M. without being accompanied by a field officer. Batteries and forts were built all round the coast; two cruising vessels of the English navy cruised around the island, starting from Jamestown every night from opposite directions. A line-of-battle ship lay off Jamestown with the fastest frigate in the British navy to take Napoleon off in case of an attack by a fleet, and every precaution was taken to render escape impossible.

"The expense of Napoleon's household was at first estimated at eight thousand pounds a year, but this was found insufficient, and increased to twelve thousand pounds, and even then Napoleon had some of his silver plate broken up and sold in order to meet expenses.

"It had been decided to build a more suitable residence, and the necessary framework, prepared in England, arrived

in May, 1816. The governor called on Napoleon to ascertain his wishes about the building, but the interview was so unpleasant that he left without having obtained the information, and also without having been able to present an English major-general whom he had taken with him for that purpose. This was the last interview with the governor. The house was erected, and was fairly suited for the requirements of a large family accustomed to the luxuries and refinements of fortune and rank, but Napoleon never occupied it. He preferred to be considered a martyr, and did not wish any mercy from his enemies. An expensive iron railing was erected around the garden, which was especially disagreeable, and its removal was ordered, but postponed during Napoleon's last illness.

"Napoleon did not pass his time in idleness, even when dependent on himself for employment. He usually retired at ten or half past, and arose on finding himself refreshed with sleep, without regard to the hour. An hour or so would be passed in dictating a portion of his former career to General Montholon, or some other general. If the weather permitted he would walk outside the house for a short time. At ten he breakfasted, either alone or with some one or more of his suite. In the afternoon he read or dictated, and often went out riding, his favorite resort being a spring at the head of the valley below the western edge of the Longwood plateau. Here he used to sit and read under a willow-tree, and on one occasion is said to have fallen asleep there and dreamed that Josephine was lying in front of him at that very spot; so on awaking he requested that after his death, if they should decide to bury him on the island, he wanted to be buried in that spot until his remains should be taken to France. His daily routine of life was subject to but little variation. At 8 P.M. he usually dined with such members of his suite as had been notified to attend. Games of chess or whist followed, then reading aloud and general conversation

until bed-time. The little household observed all the etiquette of an imperial court. Napoleon was exceedingly particular in all the minutiæ of the toilet, and was himself scrupulously clean and particular. In the morning he wore a light-colored dressing-gown and loose trousers; after breakfast a green uniform coat with the ribbon and Cross of the Legion of Honor, white trousers, silk stockings, and light thin shoes, and his old cocked hat across his head.

"December 30th, 1816, Count Las Casas and his son were transported from Longwood to the Cape for having tried to send a letter to Europe by private conveyance. This attempt was made by a letter in cipher on a piece of white satin which was sewed in the waistcoat of a servant boy named Scott. The boy became frightened at his dangerous undertaking, and told his father, who managed to save his son's life by taking him to the governor and revealing the circumstance. Scott was sent to Ascension. Napoleon must have felt the departure of Las Casas keenly, but he did not protest against it as much as was expected.

"Napoleon's health began to decline in November, 1817, and his gloomy disposition did not encourage his physician in his efforts to cure him. Dr. O'Meara was detailed from the 'Northumberland' to attend Napoleon when he first landed, and he became very much attached to his patient. In July, 1818, Dr. O'Meara most unexpectedly received orders, in accordance with instructions from England, that his duties as physician to Napoleon should cease immediately, and that he should leave Longwood without holding any communication with its inmates. The doctor hesitated, but opposition was useless, and, after packing his effects, he had an interview with Napoleon and left. It is said that the doctor had been detected in forwarding correspondence; at all events he was sent to England and dismissed from the English navy.

"Dr. O'Meara published an account of Napoleon's exile

in 'A Voice from St. Helena,' in which he justifies his last visit to Napoleon as being absolutely necessary for him to prescribe for his patient. Dr. Verling, a surgeon of the artillery, was appointed to attend Napoleon, but the latter declined to see him, and though he remained an inmate at Longwood for over a year he never was admitted to an interview with the emperor.

"Among other annoyances Napoleon's little court began to quarrel, and old issues were revived between the Generals Bertrand, Montholon, and Gourgaud. The families of the two first named rarely spoke, and General Gourgaud's dispute almost resulted in a duel with Montholon. In 1818 Gourgaud's position became such that he felt obliged to leave St. Helena. Countess Montholon also left St. Helena in July, 1819, on account of ill health, and her departure affected Napoleon a great deal because he was much attached to her.

"In January, 1819, Napoleon had a serious attack of vertigo, and Dr. Stokoe, surgeon of the ship 'Conqueror,' then at anchor in the roads, was called in, and an application was made that Dr. Stokoe should be appointed permanently, but the admiral would not consent. In September, 1819, a vessel arrived with two priests appointed by the Pope, and Professor Antommarchi, selected for Napoleon's medical adviser by his uncle, Cardinal Fesch, and some other persons destined for subordinate positions in the household, arrived at the same time.

"Shortly after this a great change came over Napoleon's habits. He began to amuse himself by working in the garden. Here he worked with his own hands, making flower-beds in one part, vegetable-beds in another, and embankments. He, however, soon wearied of gardening. The little garden mounds changed their character, and reflected the ruling passion of the exile in models of parapets and breastworks, by means of which he explained the theories of attack and defense; one day he would design

and construct means of defense which should puzzle an invading force most decidedly, and the next he would show how to demolish the works in a very few moments. He also constructed a fish-pond and irrigating works, and took great delight in the encroachments of cattle upon his vegetable garden. Napoleon was generally pleased to receive visitors, and a great many captains of vessels, passengers, etc. who stopped at St. Helena were granted permission by the governor to call and pay their respects to the illustrious exile. Notwithstanding the great precaution to prevent his escape, a number of plots are said to have been formed, and one or more are said to have been almost successful. The captain of an American whaler is said to have organized a plot which almost succeeded. He managed to have a boat in readiness at Prosperous Bay, but by some strange fatuity the sentries were doubled at the house that night, and the boat had barely time to get back to the whaler before the cruisers came around and gave chase. There was a Chinaman employed at Longwood who used to carry provisions from Jamestown, and who resembled Napoleon in features, stature, and walk to such a remarkable extent that the governor had him sent off the island for fear that he might exchange clothes and personate Napoleon until he should have affected his escape.

"In April, 1821, Napoleon's disease assumed alarming symptoms. Dr. Arnott was called in to consult with Professor Antommarchi, but the illustrious invalid never rallied, and after a severe struggle died on the 5th of May, 1821. A gale of wind set in on the day before, which was very violent on the 5th; many trees were blown down—a most unusual occurrence on St. Helena—and it is probable the dying man's last moments were influenced by the noise, which suggested to his fading mind the strife of battle. His last words were '*Tête d'armée.*' A post-mortem examination on the 6th revealed the cause of death to have been from an ulcerated stomach.

"Napoleon was born on August 15th, 1769, and was fifty-one years, eight months, and twenty days of age when he died. His remains were laid in state and viewed by all the inhabitants of Jamestown, both white and black, the latter holding him in special reverence, chiefly because he had brought about the abolition of slavery on the Island of St. Helena. A plaster of Paris cast of his face was taken, and on the 8th he was buried in the Seine Valley, beneath a group of willows which had been his favorite haunt during life-time. The funeral was conducted with all possible ceremony and military honor, and his coffin was deposited in a vault secured by large blocks of stone joined together by bars of iron.

"Napoleon's will was opened on the 12th of May, when it was found that he had bequeathed legacies to the amount of six millions of francs to his officers, favorite servants and attendants, and left directions for the disposal of his private domains, which he estimated at two hundred million francs. He also requested in his will that his remains might ultimately be deposited on the banks of the Seine, in the midst of his beloved people of France.

"'On May 27th, 1821, the Count and Countess Bertrand, Count Montholon, Professor Antommarchi, the priests and all the persons connected with the last household, left St. Helena in the ship "Camel," and the exile of Napoleon became an event of the past.

"In 1840 the French government applied to Great Britain to sanction the removal of Napoleon's remains to the Hotel des Invalides, in Paris, and every preparation was made for conducting the proceedings in a becoming manner.

"On the 8th of October the French frigate 'Belle Poule,' commanded by the Prince de Joinville, third son of the King of the French, and the corvette 'Favorite,' arrived at St. Helena to take the body to France. A number of other vessels of both the French and English

navies had arrived previously. The distinguished French officials were received with royal honors by the military and naval forces of St. Helena. Preparations were then made for the removal of the remains, and at one o'clock on the morning of October 15th, 1840, the day on which, twenty-five years before, Napoleon had arrived at St. Helena, the work of disinterment was commenced. The work was attended with considerable difficulty, owing to the manner in which the tomb was sealed; but at 9 A.M. the coffin was raised and removed to a tent, where the remains were identified by Generals Bertrand and Gourgaud, Baron Las Casas, and others who had shared Napoleon's exile, and the body was found to have changed but little since it had been buried twenty years before.

"The funeral ceremonies were very imposing, and every mark of respect was paid by the inhabitants and local authorities. The French had made elaborate preparations and brought a magnificent sarcophagus made of ebony, with the word 'Napoleon' in gilt letters, to contain the metallic casket holding the remains. Minute guns were fired by the forts and men-of-war during the entire obsequies, and the ceremony of requiem high mass was impressively performed by the Abbé Coquereau, when the casket was deposited in a little chapel which was built on the gun-deck of the frigate 'Belle Poule.' This chapel was upholstered with solemn gorgeousness, the sides and ceiling being lined with black velvet, studded with silver stars, and illuminated with elegant candelabra. Thus every possible honor was rendered to the remains of the late illustrious exiled emperor by the representatives of both governments. On October the 18th, the 'Belle Poule' and 'Favorite' sailed for France."

ASTRONOMERS IN A QUANDARY.

BY

HARRY MEYERS.

O Science, in thy famed name,
How much there is endured;
Despite of danger to be feared,
How many by thy charms are lured!

E'en now upon our after-deck,
A band of heroes lie,
Assembled in a commn cause,
Theirs but to do or die.

What cruel fate brings them afloat,
On ocean's heaving waste—
The call of duty to them plain,
They all obey in haste.

An eclipse on far Afric's shores
This fearless band enticed—
To glean from Science's lavish hand
The learning so highly prized.

They've left the comforts of our world
In foreign climes to roam;
To study nature in many forms
They now sail across the foam.

But alas! list to the mighty roar
Of Old Ocean in a flurry;
And as our brave ship plows along,
Her bows in foam she buries.

See how she pitches high in air,
And dives down with a crash;
Now rolls to starboard, then to port,
And threatens all to smash!

The struggling of the sea and wind
  Brings aboard a sickening motion,
Whose presence by some is quickly felt,
  To hastily feed the ocean.

Alas! for the frailty of earthly things,
  And the lowly spirit of man;
How soon are void the hopes and joys
  Of this once sprightly band!

Cannibals or lions not a bit they feared,
  Nor deadly perils whatsoever;
But now seasickness doth them bend—
  To resist in vain they endeavor.

But futile indeed their feeble efforts,
  For well fast within his toils
This howling demon of the sea
  Their glittering dream despoils.

In agony's throes they clasp their hands,
  And wish themselves in vain
From off this rolling, pitching ship,
  And on dry land again.

Starvation, thirst, and all the list
  Of perils they sought to face—
Their fancy left them far behind—
  Seasickness is in the race.

See how that poor dejected wretch
  In anguish strives to gain
The friendly rail to lessen
  His cruel, dreadful pain

But still the vessel rolls and heaves,
  Increasing their distress;
Their state so hard to depict
  I fear indeed is useless.

PROGRAMME

OF THE

"PENSACOLA" GLEE CLUB.

CHARACTERS.

INTERLOCUTOR.....James Gilliard.

Samuel Fields, W. T. Green } Bones. Tambourines. { C. W. Hunter, J. M. Harden

GRAND OVERTURE BY THE BAND.

PART FIRST.

"Gabriel's Band."....C. W. Hunter.
"Fisher Maiden."....R. Turner.
"Bad Coon."....Samuel Fields.
"Dese Bones Shall Rise Again."....J. M. Harden.
"Oh! Dat Watermelon."....W. T. Green.

PART SECOND.

Song and Dance....H. Rogers and S. Frazer.
Stump Speech....J. T. Carpenter.
Quartet....Turner, Datcher, Walker and Harden.
Sketch...."The Doctor's Office."
J. Golden and W. T. Green
Violin Solo...."Lucia de Lammermoor."
G. Savasta.

PART THIRD.

Sketch and Song...."Old Black Joe."
C. W. Hunter.
Sketch...."The Tramp at a Lodging House."
C. Addison and A. Merritt.
"Confusion at a Darktown Cake Walk."....The Entire Company.

Entertainment Friday Evening, 7:30 P.M., April 4th.
Repeated by request on the 5th.

PROGRAMME OF ENTERTAINMENT GIVEN AT ST. HELENA.

GRAND ENTERTAINMENT

To be Given at the

GARRISON THEATRE, ST. HELENA,

Wednesday, March 5th, 1890.

By the

U. S. S. "PENSACOLA'S" MINSTREL TROUPE,

In Aid of the

ST. HELENA BAPTIST CHURCH.

PROGRAMME.

Manager—R. Hartington.	Stage Manager—J. J. Rochfort.
Bones—J. J. Rochfort.	Interlocutor—R. Hartington.
Musical Director—G. Savasta.	Tambourine—H. Lowes.

PART FIRST.

Introductory Overture.....“Good-Bye,”
Orchestra.
Opening Chorus.....“In the Evening by the Moonlight,”
Company.
Ballad.....“Baby's Laughing in Her Sleep.”
S. Ruden.
Ballad.....“A Boy's Best Friend is His Mother.”
Dell Parkins.
Ballad.....“Light in the Window.”
James Sullivan.
Comic Refrain.....“Listen to My Tale of Woe.”
H. Lowes.
Ballad.....“Marguerite.”
P. Clinton.
Ballad.....“Rocked in the Cradle of the Deep.”
G. H. Beamer.

Sentimental Song....."The Song That Reached My Heart."
R. Hartington.
Comic Song....."Hard to Love."
J. J. Rochfort.

PART SECOND.

Stump Speech.....J. P. Hoey.
Song and Dance.....P. Clinton.

THE LAUGHABLE FARCE

Entitled

"THE BOXING MASTER."

Professor Knock-em-Out.....H. Meyers.
Sidney Grip.....Simon Smith.
A Dandy Copper.....James Sullivan.
Waiter.....John Sullivan.
Character Song....."I'm a Dude."
S. Ruden.
Violin Solo....."Lucia de Lammermoor."
G. Savasta.

THE BLACK STATUE;

OR,

TRUE LOVE NEVER RUNS SMOOTH.

Professor Fossil (An Antiquarian).....G. Collyer.
Peter (An ill-used Coon).....H. Lowes.
Miss Mary Fossil (Antiquarian's Daughter).....S. Ruden.
Tom Brown, The Black Statue, (In love with Miss Mary)
R. J. Zehnder.

PART THIRD.

Banjo Solo.....J. P. Hoey.
Statue Clog.....P. Clinton.

AN AMUSING SKETCH

Entitled

"THE ACADEMY OF STARS."

Manager.....R. J. Zehnder.
Black Jack, The Bouncer.....J. J. Rochfort.
Whisky Jake, The Great Unwashed.....J. P. Hoey.
Dandy Pat, an Irish Comedian.....James Sullivan.
Antonio Gonsalos, Tragedian.....S. Ruden.
Herr Most, Dutch Comedian.....Simon Smith.
White Swan, the Prima Donna.....Dell Perkins.
Character Song.....James Sullivan.
Sailor's Hornpipe.....P. Clinton.
Banjo Specialties.....J. P. Hoey.

To conclude with the grand illuminated tableau, "The Goddess of Liberty."

Sailor—J. J. Rochfort; Goddess—H. A. Eilers; Soldier—Corporal McDonald.

PLACES VISITED BY THE U. S. S. "PENSACOLA."

PORTS.	COUNTRY.	ARRIVAL.	DEPARTURE.	DIST.
Fayal.....	Azores.....	Nov. 2d....	Nov. 3d....	2,110
Porto Grande..	Cape Verde Islands.....	Nov. 10th...	Nov. 12th...	1,290
Free Town....	Sierra Leone..	Nov. 18th...	Nov. 20th...	300
Cape Coast Castle.....	West Coast Africa.....	Nov. 26th...	Nov. 26th...	900
Elmina.....	" "	Nov. 26th...	Nov. 28th...	8
St. Paul de Loanda.....	" "	Dec. 6th....	Dec. 7th....	1,210
Cape Ledo....	" "	Dec. 8th....	Dec. 27th...	90
St. Paul de Loanda.....	" "	Dec. 28th...	Jan 6, 1890.	90
Cape Town ...	South Africa..	Jan. 17th...	Feb. 6th....	1,650
James Town ..	St. Helena. ..	Feb. 20th...	March 10th.	1,670
George Town .	Ascension	March 16th.	April 8th...	700
Bridge Town..	Barbadoes....	April 28th..	May 10th. ..	3,050
	Bermuda.	May 18th...	May 19th...	1,160
New York....	America.....	May 23d....		600

MARINE GUARD U. S. S. "PENSACOLA."

CAPTAIN M. C. GOODRELL, Commanding.

First Sergeant, William Von Sihepke. Sergeant, J. A. O'Brien.
Sergeant, J. Smith.

Corporal, H. Jeh,	Corporal, L. A. McDonald,
" H. Crayton,	" W. S. Moroney,
Drummer, J. Rahn,	Fifer, J. P. Hilton.
Private, R. J. Behrendt,	Private, W. M. Mulholland,
" Charles Blum,	" P. B. Butlet,
" J. Carroll,	" S. Clarke,
" J. Collins,	" J. Coyne,
" J. E. Crowther,	" C. S. Darden,
" Charles Everett,	" R. A. Hobbs,
" S. Kennedy,	" William McLaughlin,
" J. Malone,	" M. Meade,
" L. Morgan,	" S. Morrisy,
" Fred C. Niepmann,	" D. O'Connell,
" C. O'Sullivan,	" L. Rapp,
" J. Riggs,	" E. S. Saisbury,
" J. Sihafft,	" J. Shevlin,
" S. W. Sterling,	" D. B. Sumner,
" Charles Surgeon,	" M. S. Gaffney,
" M. Garland,	" H. Helmers,
" Sh. Von Tannhausen,	" J. P. Whelan,

Private, J. Wolf.

Professor D. P. Todd, Director Astronomy.
" J. H. Bigelow " "
" E. J. Loomis, Botany and Ornithology,
" C. Abbe, Meteorology,
Mr. E. D. Preston, Terrestrial Physics,
" C. A. Orr, Anthropology,
" L. H. Jacoby, Astronomy and Geodesy,
" H. Chatelain, Languages,
" W. H. Brown, Natural History,
" A. H. Brown, Natural History,
" E. J. Wright, Photography,
" J. E. Carhult, Photography and Chemistry,
" H. S. Davis, Astronomy,
" G. E. Van Guysling,
" D. E. Bartlett,
" M. O'Connor,
" W. F. Flint,
} Assistants.

LIST OF OFFICERS ON BOARD U. S. S. "PENSACOLA

RANK.	NAME.
Captain,	A. R. Yates.
Lieutenant Commander	F. Hanford.

Officers—Senior.

RANK.	NAME.
Navigator Lieutenant,	E. W. Nichols.
Lieutenant,	L. C. Heilner.
"	M. C. Hall.

Officers—Junior.

RANK.	NAME.
Ensign,	J. A. Dougherty.
"	J. H. Rohrbacher.
"	A. N. Mayer,
"	N. A. McCully.
"	R. H. Scales.
"	A. H. Davis.
"	G. H. Burrage.

Naval Cadets.

RANK.	NAME.
Naval Cadet,	William McDougall.
" "	F. Marcel.
" "	G. N. Marvell.
" "	J. R. Patton.
" "	P. Williams.
Captain of Marine Guard,	M. C. Goodrell.

Engineers.

RANK.	NAME.
Chief Engineer,	J. W. Thomson.
Past Assistant Engineer,	A. Tobin.
Assistant Engineer,	I. Blue.

Medical Department.

RANK.	NAME.
Medical Inspector,	C. H. White.
Past Assistant Surgeon,	F. A. Hesler.
Assistant Surgeon,	L. L. Von Wedekind.

PAY DEPARTMENT.

RANK.	NAME.
Pay Inspector,	L. G. Billings.
Pay Clerk,	J. A. Delves.
Chaplain,	T. R. Matthews.

WARRANT OFFICERS.

RANK.	NAME.
Boatswain,	J. Costello.
Gunner,	J. Giskins.
Carpenter,	G. W. Davis.
Sail-maker,	C. E. Winter.

PETTY OFFICERS—FIRST CLASS.

RATE.	NAME.
Master-at-Arms,	R. J. Keating.
Equipment Yeoman,	L. J. Byrns.
Apothecary,	U. T. Evans.
Pay Yeoman,	H. O. Metius.
Engineer Yeoman,	William Shormascer.
Ship's Writer,	F. E. Dow.
Schoolmaster,	Perry Clintin.
Bandmaster,	G. Savasta.
Machinist,	A. J. Foriman.
"	A. Metting.
"	J. M. Beam.
"	G. Kruy.
"	R. Harlington.
Chief Signal Quartermaster,	H. C. Jarrett.

SECOND CLASS.

RATE.	NAME.
Chief Boatswain's Mate,	J. Schlit.
Boatswain's Mate,	J. C. Berry.
" "	R. Hendrick.
" "	G. Lane.
Quartermaster,	H. A. Eilers.
"	C. Thompson.
"	D. Stepburn.
Gunner's Mate,	P. Doherty.
"	J. Ferber.
Boiler Maker,	J. Murrues.

Ship's Corporal,	T. Brown.
" "	J. V. Bergstrom.
Armorer,	F. E. Larking.
Carpenter's Mate,	H. J. Wirtz.
Blacksmith,	J. Moloney.
Sail-maker's Mate,	P. Dory.
Water Tender,	J. Broserick.
" "	C. H. Guth.
" "	J. Horan.
Chief Musician,	A. Boyd.
Chief Cook,	T. Eason.

THIRD CLASS.

RANK.	NAME.
Captain Forecastle—Starboard,	M. Cotter.
" " —Port,	William Campbell.
" Foretop—Starboard,	M. Rangoal.
" " —Port,	C. O. Karlson.
" Maintop—Starboard,	J. McMillan.
" " —Port,	H. Allen.
" Mizzen-top—Starboard,	C. A. Leisegang.
" " —Port,	C. M. Farll.
" After Guard—Starboard	M. T. Pierce.
" " —Port,	Alexander Cobbey.
Coxswain,	A. Tiedeman.
"	R. C. Morrison, (Apprentice.)
"	J. Powers.
"	J J. Rochfort.
"	J. Williams.
Quarter Gunner,	S. Tracy.
" "	G. H. B. Blumenthal.
" "	B. Bertelsen.
" "	M. Forbes.
" "	O. Johnson.
Captain Hold,	H. P. Holm.
Printer,	R. Dolton.
Painter,	P. Mehrbrey.
Oiler,	S. E. Kendrick.
"	E. Muller.
"	M. A. Hanlow.
Oilers for Dynamo,	W. B. Cross.
" " "	E. Schuldt.

SEAMEN—FIRST CLASS.

NAME.	NAME.
C. Christianson,	F. W. Endrichkeit.
Weiss,	T. Henry,
L. Nelson,	J. Samudson,
J. Hartley,	J. P. Hoey,
J. E. Cotton,	E. F. Jackson,
W. Boughton,	F. Muller,
F. J. Reardon,	H. Way,
O. Pederson,	G. Bethke,
J. Worth,	P. Murphy,
D. Driscoll,	O. Larson,
F. Johnson,	P. W. Hoffman,
G. Salis,	N. Hauson,
J. H. Bennett,	E. Mickkleson,
J. Nicholson,	D. J. Murphy,
G. Peterson,	O. Madison,
J. Stoll,	J. O. Nedl.
G. Petacola,	William Johnson,
J. Clancy,	H. Sullivan,
T. Welin,	F. White,
G. Maxwell,	J. E. Wikman,
J. Gilliard,	W. J. Keernan,
J. O. Rourke,	H. Frederickson,
B. A. Baker,	William F. Smith,
F. J. McGuire,	O. S. Nilson,
T. Behrsing,	O. Holingren,
P. Hanson,	J. D. Block,
J. Fogelberg,	T. J. Smith, (Lamp Lighter.)

M. M. Wells, (Jack of the Dust.)

SECOND CLASS.

NAME.	NAME.
G. C. Siverson,	G. W. Peterson,
A. Bergman,	H. F. Lowes,
J. Sullivan,	F. Antrobas,
O. Jacobsson,	E. Olson,
William Ginty,	B. J. Zckindar,
Y. Svenson,	J. Sullivan,
H. Rogers,	N. Launin.

C. L. Murtin,
A. Man,
H. W. Chittenden,
O. Johnson,
P. Luirk,
T. Carlson,
A. Henrikson,
J. Jarratt,
F. A. Cochran,
J. Hicks,
E. Josie,
E. Leidke,
F. Nordin,
J. Soderberg,
C. Aspenwall,
J. A. Jensen,
J. Brode,
L. Nilson,
N. Nauman,
J. R. Coban,
O. Olson,
T. Colliar,
T. Hanson,
F. Johnson,
O. Hansen,
B. L. Tyrrill,

R. Turner.

SEAMAN APPRENTICES—FIRST CLASS.

NAME.	NAME.
W. T. Renard,	T. M. McCorkle,
E. T. Hoffman,	H. Bohns,
W. J. Kenny,	M. D. Baker,
O. Schmidt,	H. Meyer.
S. Ruden,	S. Smith,

J. F. Pecham.

SECOND CLASS.

NAME.	NAME.
J. M. Harden,	P. J. Anderson,
William Crowl,	P. G. Bom,
J. A. Ludwig,	G. H. Bearner,
J. T. McGweny,	W. G. Hass,
F. W. H Klein,	N. S. Pollard,
M. Elliott,	H. Bowers,

E D. Miller.

APPRENTICES—FIRST CLASS.

NAME.	NAME.
E. C. Bishop,	H. B. Belding,
A. Rogers,	C. S. Connor,
J. W. Hatten,	R. W. Smith.

SEAMEN—THIRD CLASS.

NAME.	NAME.
E. Webster,	J. F. Carpenter,
A. E. Merritt,	C. Fearson,
O. B. Williams,	J. Smith,
S. Field,	G. Williams,
W. Luda,	H. Wilson,
E. N. Austin,	G. Class,
W. H. Addison,	J. Galligor,
H. H. Carhart,	Y. C. Ryder,
J. Foley,	A. C. Edelin,
J. A. Magruden,	H. Maltz,
J. E. Moore,	A. Allen,
D. Perkins,	T. T. Flood,
C. W. Hunter,	H. Peters,
J. Pynes,	L. Lassner,
J. F. Brown,	H. Hart,
J. Walker,	J. H. Davidson.
W. H. Brooks,	C. Addison,

R. Glynn.

ENGINEER'S DIVISION.

RATE.	NAME.
Water Tender,	J. Broderick.
" "	C. H. Gush.
" "	J. Horan.
Oiler,	M. O. Hanlon.
"	S. E. Kendrick.
"	E. Mullen.
First Class Fireman,	J. T. Tubbs
" " "	M. Chappell.
" " "	M. L. Brann.
" " "	P. Hendrick.
Second Class Fireman,	T. Garvey.
" " "	J. T. Mahone.
" " "	H. Dorr.
" " "	F. May.
" " "	S. M. Castele.
" " "	J. O. Burgers.
" " "	A. H. Porter.
" " "	T. Clark.

Coal Heavers,	T. H. A. Bingham.
" "	T. T. Adams.
" "	P. Bradely.
" "	R. H. Emery.
" "	G. Datcher.
" "	T. E. Golden.
" "	F. Gonzales.
" "	W. J. Green.
" "	H. Chandler.
" "	W. H. Hart.
" "	J. S. Langley.
" "	C. Cambell.
" "	S. Boitnott.
" "	W. H. Hall.
" "	G. F. Jordan.
" "	W. T. Peellee.
" "	J. McNicol.
" "	J. H. Tabb.
" "	D. T. White.

EXTRACT FROM A REPORT OF PROFESSOR CLEVELAND ABBE.

The meteorological work that I proposed to execute during this expedition consisted in an attempt to determine more exactly, than has hitherto been done, the motion of the clouds of the ocean.

It has always been assumed that the general circulation of the atmosphere on the broadest scale can be deduced from the observed movements of the layers of clouds, and this hypothesis has been made the basis of several conflicting theories as to the probable character of the general circulation between the poles and the equator. My desire has been to obtain accurate facts as to the cloud movements, which facts can be utilized by those who are studying the general motions of our atmosphere.

The air seldom if ever moves in straight lines for any distance, and partly pursues a curved path that is called cyclonic when it is nearly horizontal, as in hurricanes and

typhoons; and is called undulatory when the curvature is in a nearly vertical plane, as in the formation of the trade cloud, which is the visible top of a rapid ascending and descending motion.

Often there are several layers of clouds, one over the other, and each pursuing its own path. We may infer from this, therefore, that it will be necessary to know the motion of each of these referred to the true meridian, if we are to understand the process by which a storm is maintained as it travels for days and weeks along over the ocean.

The rolling and pitching of a ship must be diminished if we are to make accurate observations of cloud motions. I have therefore so mounted my nephoscope upon the starboard compass on the after-bridge of the "Pensacola" that the plane of its mirror shall be almost as nearly horizontal as the compass card itself.

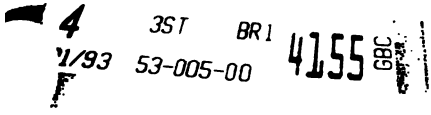
The nephoscope is the name for any instrument contrived for making observations of clouds, and the form adopted by me consists simply of a circular plate glass mirror lying horizontally, so that the clouds are seen reflected upon it. There is a spot to mark the center of the mirror, and a circle around this to limit the field within which the observations are to be made. About five inches above the mirror is a small knob that can be set so that its reflection is seen at the center of the mirror; the imaginary line drawn from the knob to the center and then reflected up to the eye gives us a direction that is fixed in the sky in so far as the mirror and compass card remain horizontal, while the vessel is rolling, yawing, and pitching.

If the eye is kept in such a position that the knob is steadily seen reflected at the center, then the cloud will soon be observed to be moving away from that center, and the direction from which it is moving is given by looking at the degrees or points of the compass marked on the outer circle of the mirror and on the compass card.

With this simple instrument one can easily select any point in any cloud or layer of clouds and determine the movement of each quite independent of the conflict that would occur if he could only compare the clouds among themselves.

Such observations with the nephoscope have shown that we have three distinct kinds of clouds—distinct as to their mode of formation and their movements. The lowest clouds are the scud or tops of currents that are curved up by the wind; the cumulus tops of currents rise up by heat; the stratus or the nimbus are descending overflow from the tops of the cumuli. The cervi or tops of lighter currents that find the cumuli and the mountain-tops impeding their progress have to rise up over them. These cervi also overflow horizontally and flow back as slowly descending and dissolving clouds. In all cases in the Northern Hemisphere the lighter clouds move from a direction that is a little to the right of the direction of the lower clouds or the wind masses as it rises. In the Eastern Hemisphere it disintegrates as it rises. This rule for the manner in which the air moves will probably offer a simple explanation of many important facts such as the rotation of winds about a storm center, and the movement of storms eastward over the North Atlantic.

THE END.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